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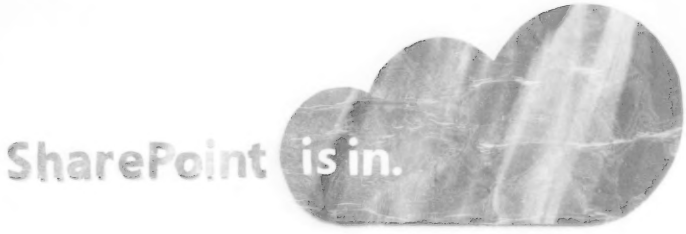

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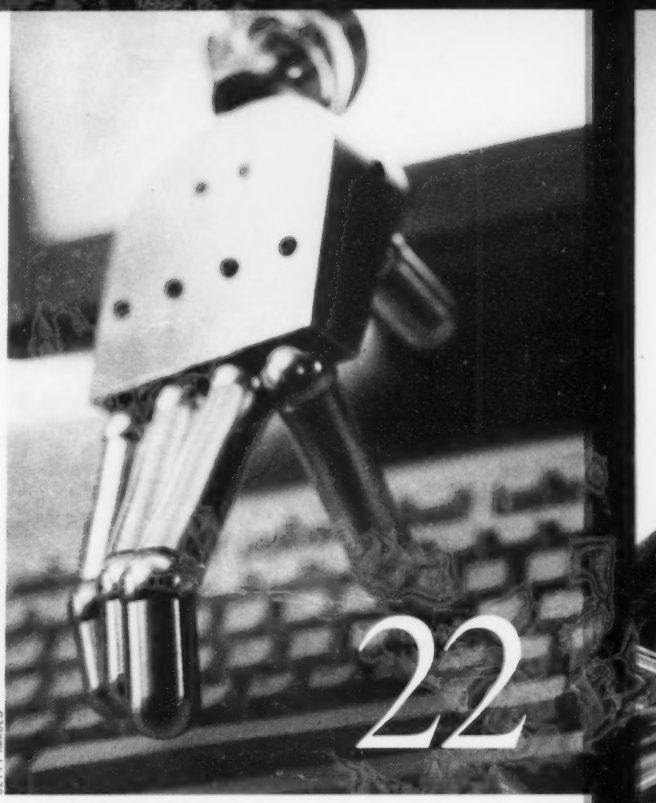

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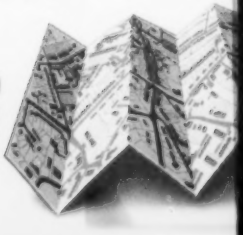

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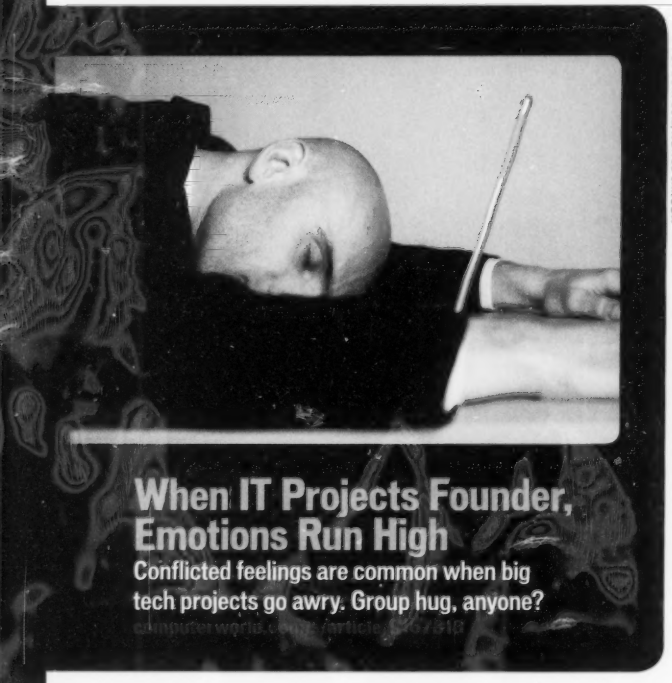

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When IT Projects Founder, Emotions Run High

Conflicted feelings are common when big tech projects go awry. Group hug, anyone?

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IT Gives Windows 7 The Green Light

After taking a pass on Vista, organizations are ready to commit to Microsoft's new OS. Major rollouts are planned for this year.
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Apple's Mac Mini Server 'Ideal' for the Small Office

It's inexpensive and easy to set up and use.
computerworld.com/s/article/9168678

Everything iPad

Keep up with the latest on Apple's tablet.
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Blog Spotlight

Here Come Linux's iPad Clones

The IT world is abuzz with talk of Apple's iPad, which launches April 3. But **Steven J. Vaughan-Nichols** plans to wait for cheaper, open-source alternatives.
blogs.computerworld.com/node/15742

Microsoft's Embrace of the Cloud Is Not As Wholehearted as Ballmer Claims

Steve Ballmer is heavily promoting Microsoft's support of cloud computing. But **Preston Gralla** says Microsoft hasn't truly embraced the cloud, as its upcoming release of Office 2010 reveals.
blogs.computerworld.com/node/15702

I Want a Mac Mini on Steroids

The Mac Mini is Apple's most affordable desktop Macintosh. **Seth Weintraub** thinks it could maintain that reputation while offering even more punch.
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Maybe Users Aren't So Funny After All

OPINION: Kenneth van Wyk says IT security pros need to do things differently and stop expecting every user to be a security expert. computerworld.com/s/article/9171458

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Moving to the Cloud: Big Savings, but Plan Ahead

Sure, savings are possible, but you have to think about efficiently migrating data to the cloud, meeting compliance demands and avoiding software licensing snafus, among other things. computerworld.com/s/article/9170678

Underrated Computing Threats You Need to Know About

Think your PC is completely protected? Not necessarily. There are some hidden dangers that you might not have thought of.
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USB 3.0: The New Speed Limit

The first devices using USB 3.0's SuperSpeed spec are now hitting the market. We try out a few to see how fast they really are.
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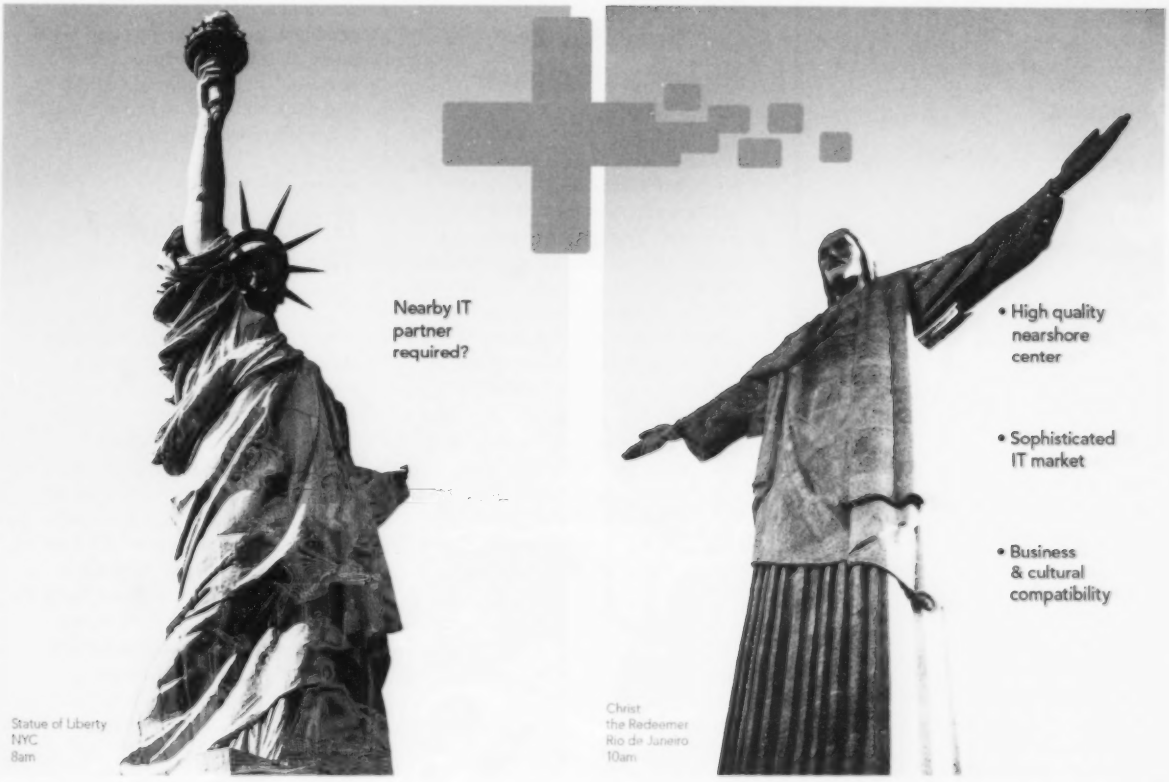

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ONLINE CHATTER

RESPONSES TO:

Certifications Are No Longer Optional

March 8, 2010

Unfortunately, Bart Perkins' article is correct: Eventually, "certified" will be synonymous with "employable." The reason is pure and simple: the HR department. Which department creates impossible job descriptions for absurdly low salaries? Which one usually takes the lead in filtering, screening and interviewing job candidates? Both times, it's HR.

IT certifications are quick and easy items for HR lackeys to understand and find on a résumé. The typical HR department today simply lacks the time and intelligence to know what these certifications mean, what they cover or if they are of any actual value. But it has been my experience that the guy who doesn't have the IT certification usually can do the job better than the guy with the IT certification.
Submitted by: *Joe S*

I don't think having a certification or two is a bad thing, but it can get out of hand. The PMP is worthwhile for project managers, as are one or two major certifications for security people and several for network experts. It gets a bit more dicey in application development. Far too often, companies have been burned because some developer with a boatload of certifications had not much else to offer.

But experienced developers shouldn't just stick their heads in the sand and say things like, "I'm too busy actually working to worry about certification." At some point, your degree and experience don't mean as much as what new language you know. Yes, knowing how to write good, stable software is what ultimately will keep you in a job, but sometimes you may need the certification just to garner consideration for the job. It's a good idea to stay current in the technologies that keep you employed, and getting a certification in a new technology is a way to bridge the gap between what you already know and what you want to learn.
Submitted by: *VeteranDeveloper*

RESPONSES TO:

IT Gives Windows 7 The Green Light

March 9, 2010

According to the article, Windows XP is "an outdated, eight-and-a-half-year-old operating system that should have passed into the high-tech fossil record long ago."

This is one of the reasons the IT industry is going to hell in a handbasket, when *Computerworld* buys into the lie that a piece of software that's been around for a while is useless. The drive for newer, better, faster has turned into newer, worse, slower as software companies compromise quality for higher version numbers. The "old software is junk" lie allows the software makers to sell you new versions instead of fixing or updating what you've already purchased.
Submitted by: *Anonymous*

In reality, if a company wants support from Microsoft, it has no choice but to start planning a changeover to Windows 7. It's either that or move off of the Windows platform.
Submitted by: *Richard*

Clearly, Windows XP is a very old operating system at this point. It can't support many new features and technologies.

Most companies I spoke with certainly felt that they'd gotten their value out of XP at this point and would like to move forward.
Submitted by: *Robert L. Mitchell, author of the article*

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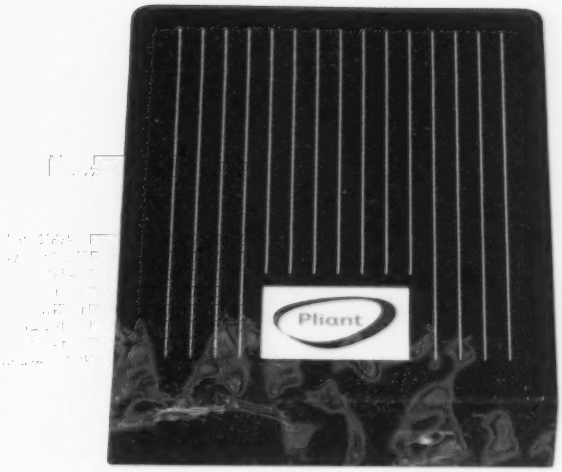

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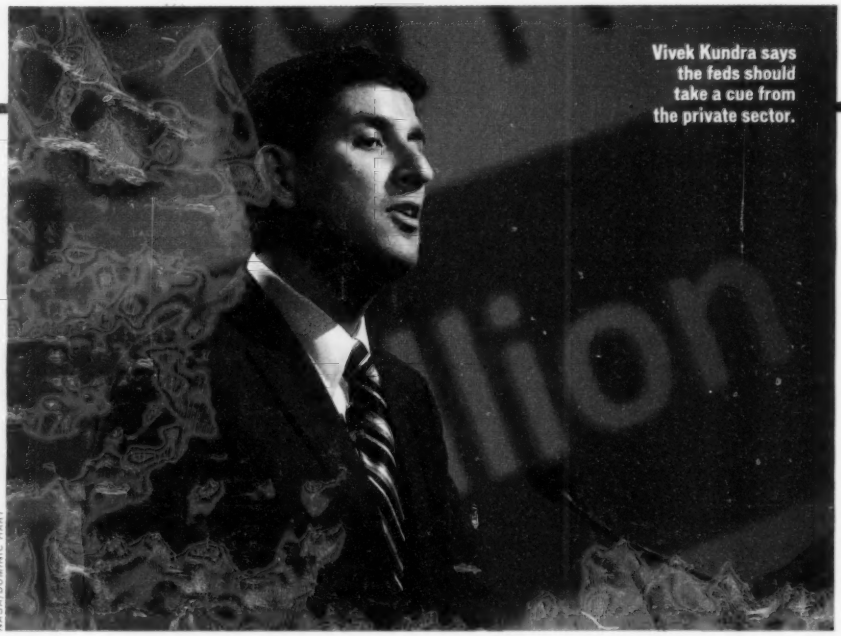

Vivek Kundra says the feds should take a cue from the private sector.

NASA/DOMINIC HART

WASHINGTON WATCH

Federal CIO Calls for Modernizing Gov't IT

WHEN federal CIO Vivek Kundra describes how the Obama administration hopes to use IT to improve public services, he first points to disturbing inefficiencies in the government today.

For example, in a speech earlier this month in Seattle, he said it takes the U.S. Department of Veterans Affairs 160 days to process benefits because it's passing manila folders from one desk to another. The U.S. Patent and Trademark Office takes three years to process a patent, in part because it "receives these applications online, prints them out, and then someone manually rekeys the information into an antiquated system," Kundra said.

"This is not how to run a modern government," he contended. Kundra said the administration is looking to the private sector for cues on how to do a better job with IT.

The administration is cutting wasteful IT projects, consolidating data centers and pursuing cloud computing, he said. And in an effort to make government data more accessible, it's developing public Web sites such as Data.gov and FlyOnTime.us.

In addition, Kundra said he's interested in creating open APIs for government systems that would allow independent developers to create useful applications for citizens, similar to the way developers are creating apps for Apple's iPhone.

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Possibilities could include applications that let a person use a smartphone to report a broken parking meter or find out online when the next snowplow will be coming, he said.

– Nancy Gohring, IDG News Service

THINK TANK

Study: Chasing Fashionable IT Doesn't Pay Off

Companies that chase the hottest information technologies gain several benefits, but better financial performance isn't one of them, according to a study published in this month's issue of the journal *MIS Quarterly*.

Ping Wang, assistant professor at the University of Maryland at College Park, studied a decade's worth of data about 109 *Fortune* 500 companies. He found that companies that got good press for investing in "fashionable" IT "did not have higher performance, but they had a better reputation and higher executive compensation."

Wang defined an IT fashion as "a transitory collective belief that an information technology is new, efficient, and at the forefront of practice." He cited data warehouses, ERP, customer relationship management and knowledge management systems as examples of popular technologies in the 1990s.

The analysis showed that corporate reputation scores and CEO pay jumped at companies known for implementing hot technologies. However, the IT fashionistas suffered declining financial performance in the year after an investment. "It took them on average three years to absorb the negative impacts, recover from the disruptions, and improve performance," Wang reported.

– MITCH BETTS

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BETWEEN THE LINES
By John Klossner

Micro Burst

In a survey covering 26 countries,

79%

of adults said Internet access is a fundamental human right.

SOURCE: BBC GLOBAL SURVEY OF 27,973 ADULTS, FEBRUARY 2010

INNOVATION

Group Seeks New Data-Center Designs

A NEW INDUSTRY group plans to apply open-source principles to the design and construction of data centers in order to accelerate the use of new, greener approaches.

The Open Source Data Center Initiative, announced this month, will act as a repository and testbed for mechanical and engineering advances in data center design, which it hopes will be submitted by small engineering firms, graduate students doing research with federal grant money and others.

The group was founded by Dave Ohara, who writes the Green Data Center Blog, with administrative support from the University of Missouri.

A key player in the alliance is adviser Michael Manos, who previously ran Microsoft Corp.'s data center operations and is now building Nokia Corp.'s cloud infrastructure. His support stems partly from his concern about what he sees as the reluctance of established engineering firms to rethink how data centers are built.

The data center industry is "dominated by a handful of large engineering houses" that are wedded to proprietary designs and are stifling innovation, Manos said. They aren't interested in educating customers about simpler, standardized alternatives, he contended.

Large engineering firms reject the idea that they're holding back the industry. Bruce Edwards, president of CCG Facilities Integration Inc., said data centers have seen significant innovation in the past 10 years in areas such as electrical power delivery and cooling.

Edwards also questioned whether a new industry group is needed. "The idea that a nonprofit, collaborative, noncompetitive model will be a powerful engine to drive innovation — I'm not convinced of it at this point," he said.

The new group's leaders say they don't aim to compete with The Green Grid forum, Uptime Institute and others but are frustrated with the rate of progress.

– James Niccolai, IDG News Service

SECURITY MONITOR

FBI Fights Cybercrime In E. Europe

Hoping to catch cybercrooks, the FBI has begun embedding agents with law enforcement agencies in Estonia, Ukraine and the Netherlands.

Over the past few months, the agents have begun working with local police to help crack tough international cybercrime investigations, said Jeffrey Troy, chief of the FBI's cyber division, in an interview. Because virtually all cybercrime crosses international borders, this type of cooperation is crucial, experts say.

The embedding was inspired by a successful operation in Romania, begun in 2006, that led to nearly 100 arrests. "We looked at that and said, 'Where else can we do this?' " Troy noted.

Security analysts say Ukraine is home to numerous online scammers, including the creators of the Zeus Trojan malware that can empty bank accounts. "Ukraine's a huge problem," said Paul Ferguson, a researcher at security firm Trend Micro Inc. "I would rank it above Russia right now."

– ROBERT McMILLAN, *IDG NEWS SERVICE*

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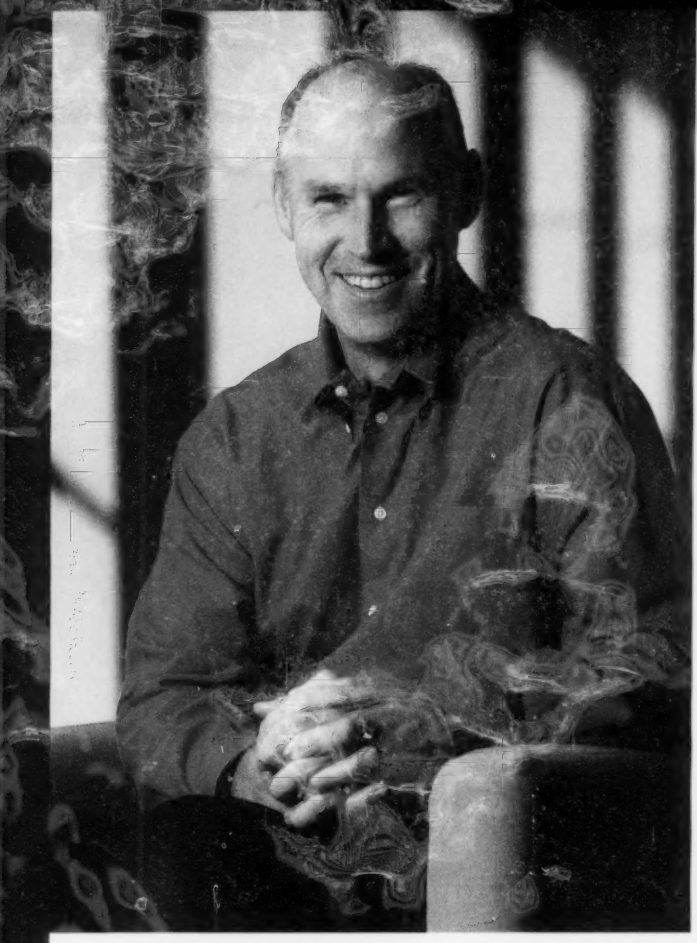

■ NEWS ANALYSIS

Outsourcing Deal Gives P&G Clout With HP Execs

A 10-year, $3 billion pact regularly brings top HP execs to P&G's offices.

By Patrick Thibodeau

PHOENIX

WHEN executives at The Procter & Gamble Co. seek answers from the company's IT outsourcer, Hewlett-Packard Co., they don't have to deal with help desks, trouble tickets or support tiers.

Instead, they most likely work directly with someone in the top levels of HP's executive ranks.

The Cincinnati-based consumer product maker's clout with HP might make some of the latter's other customers a bit jealous, but the two corporations are in the midst of a 10-year, $3 billion mega-outsourcing deal that carries high stakes for the bottom lines of both parties.

> **"[HP executives] are wired into our business. When you have the CEO of a company sitting across the table and saying, 'Were going to deliver this,' you know they are going to deliver.**
>
> **JIM FORTNER** (LEFT), VP, THE PROCTER & GAMBLE CO.

The contract, signed in 2003, called for HP to take over P&G's IT infrastructure and hire some 2,000 of the company's IT workers.

In a presentation at *Computerworld*'s Premier 100 IT Leaders Conference here earlier this month, Jim Fortner, vice president of IT development and operations at P&G's business services division, said constant communication between executive suites is imperative in such large and costly deals.

For instance, Ann Livermore, executive vice president of HP's enterprise business, travels to P&G headquarters about six times a year to take part in a joint review of the vendor's performance. HP CEO Mark Hurd attends those meetings about twice a year.

"[HP executives] are wired into our business," Fortner said. "When you have the CEO of a company sitting across the table saying, 'We're going to deliver this,' you know they're going to deliver."

Maintaining close relationships with all of its IT vendors has long benefited P&G, particularly when it bought Gillette in 2005 for $57 billion. Within two weeks, P&G's partners had assembled a team to start integrating Gillette's IT systems.

Robert Joslin, an analyst at Everest Group, a Dallas-based outsourcing research and consulting firm, said having access to top executives is "extremely critical to the success of an outsourcing relationship." In fact, the contract should stipulate that specific executives of the service provider will meet regularly with senior managers from the client firm.

The level of access to a vendor's senior executives will depend to some extent on the size of the contract and its strategic importance to both parties, but "you do try to go up as high as you can," said Joslin.

Top-level access "increases the probability that it will be a successful relationship for both parties," he noted.

Therefore, he contended, you should make decisions about when meetings will be held and who should attend before a contract is signed.

At P&G, having HP manage the IT infrastructure allows data center personnel to focus on other tasks. They're currently developing tools designed to simulate the in-store tendencies of potential customers.

Simulation "is really big for us," said Fortner.

For example, the company has created a Second Life-like environment where users can interact virtually with simulated displays of products on store shelves; they can even take items off the shelves and read their labels. The simulations are coupled with back-end analytics to assess the impact of changes to displays. ■

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BUSINESSES OF ALL STRIPES AND SIZES RELY ON THE SAME THING, to make sound business decisions: data. More data is being collected and stored in more formats and across more systems than ever. But what does all this data mean?

Businesses often rely on traditional transactional systems to sift through mountains of data to find contextual analytic information for making critical business decisions. This is a mistake for two reasons: First, transactional systems were not designed for analytics and reporting and simply cannot run ad hoc queries quickly and accurately enough for the speed of business today. Second, analytics and reporting put pressure on traditional transactional infrastructures by adding administrative complexity, the cost of greater storage requirements and increased staff overhead.

There is a better way. Specialty analytics servers enable users to dig through volumes of data to find information that helps businesses understand past events via reporting and spot trends, opportunities and potential problems by using more-advanced analytic applications.

The number of business users relying on specialty analytics servers or appliances is growing. According to new data from IDG Research, 45 percent of the users responding to a survey on this topic are taking this approach and nearly 70 percent plan to implement specialty analytics servers within two years. It's easy to see why. Business users need fast access to information that supports mission-critical decisions and real-time reporting. Innovations such as column-based database management systems take it ever further, delivering the needed information faster, more accurately and less expensively than traditional row-based systems.

Specialty Analytics Servers

Mergers, globalization, new technologies and new competitors can weaken a company's competitive position if the company does not have near-instant access to the mission-critical information it needs in order to respond to dynamic market conditions.

Indeed, the majority of the survey respondents, 73 percent, said that a need to support mission-critical business decisions was the primary driver of reporting and analytic solutions purchases; 58 percent said they need to give more users access to data, and 56 percent said data quality improvement is driving purchases.

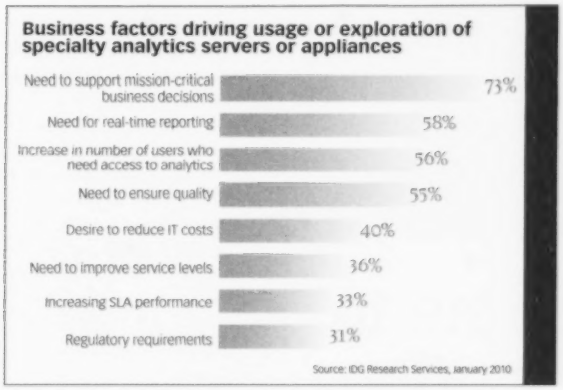
Traditional systems are great for processing transactions, but they can no more

Job 1 today is converting data of all types into actionable information. Specialty analytic servers are the secret sauce that make it happen.

About PEER2PEER:
This peer-based thought leadership program analyzes quantitative research and tests it via qualitative interviews with actual CIOs. The resulting executive insight is then disseminated via CXO's multimedia assets. To learn more about the Peer2Peer program, please contact **charles_lee@idg.com**.

compete with a specialty analytics server in performing fast, complex ad hoc queries than a delivery truck can compete with a highly tuned race car in Indianapolis. Other challenges with traditional systems reported by IT managers, according to IDG Research, include a drain on staff resources, administrative complexity, inability to support unstructured data and high storage requirements.

Specialty analytics servers, designed to provide analytics and reporting and respond to ad hoc queries across a very large volume of data, do not replace traditional systems. Rather, they offload data from traditional servers so those servers can do what they were designed to do: process business transactions. With specialty analytics servers, users can quickly dig into their data and run queries that help spot trends and opportunities. They can run risk analysis and what-if scenarios to gain a more complete understanding of their situation and options.



It's the difference between reporting on what has already happened (how many purple sweaters your shop in Austin sold last quarter) and understanding why purple was a hot seller and predicting your readiness to meet next quarter's trends.

Servers that are purpose-built for analytics and reporting can deliver answers to questions up to 100 times as fast as traditional data warehouse systems, regardless of the number of users making queries or the complexity of the queries.

"We use specialty analytics servers for marketing," says Ken Turner, director of IT at one of the world's largest technology companies. "We're getting a better picture of what our clients' makeup is, and that goes into our advertising. It helps us target the right kind of company and get the jump on our competition for those types of accounts."

According to IDG Research, companies that use specialty or dedicated analytics servers report higher levels of satisfaction than those using general-purpose systems. Specifically:

- User access: 84 percent of the specialty analytics server users surveyed say expectations have been exceeded or met, versus 62 percent for those using traditional servers.
- Handling data growth: 78 percent of the specialty analytics server users say needs are being exceeded or met, versus only 61 percent of traditional server users.

Column-Based Architecture

The capabilities of traditional row-based relational database management systems (RDBMSs), which must read an entire row of data (rather than just what is needed within the row), are quickly exceeded when the requested attributes of a complex query are being accessed. This puts a heavy drain on I/O (input/output) resources and has forced database administrators to tune the RDBMS for complex queries, often by building extra indexes. The downside of this approach is fairly obvious.

A column-based architecture is different. It manages data vertically in columns, and each column is stored independently. The system can determine which columns are accessed and retrieve only the values or attributes requested from the columns. Instead of requiring separate indexes, as in row-based systems, the data attributes themselves form the index within each column.

This reduces I/O and enables fast data access without the need to expand the footprint of the database, which coincides with the research findings that IT managers expect to see improvements in data compression, cost savings and decreased storage requirements from their investment in column-based systems. Specialty column-based analytic systems such as Sybase IQ provide significant data compression capability, which reduces the overall data center footprint and decreases storage requirements by at least 30 percent.

With a column-based analytics server in place, IT personnel spend far less time running analytics and reporting on behalf of business units or endlessly tuning the row-based database in an attempt to achieve better performance. This leaves them free to focus on other tasks that support the business.

Users across the enterprise need information that informs critical business decisions, which is at the heart of business intelligence. Specialty analytics servers such as Sybase IQ are designed for rapid query processing and ad hoc analytics and deliver better performance at lower cost. The system analyzes huge amounts of data without the need for tuning or additional storage.

Simply put, using specialty analytics servers is a low-risk, practical way to turn raw data into actionable insight.

Go to www.computerworld.com/whitepapers/sybase for a free download of the white paper "Specialty analytics servers: Enabling decision-making @ the speed of business," which includes further IDG Research survey results as well as insightful interviews with industry executives.

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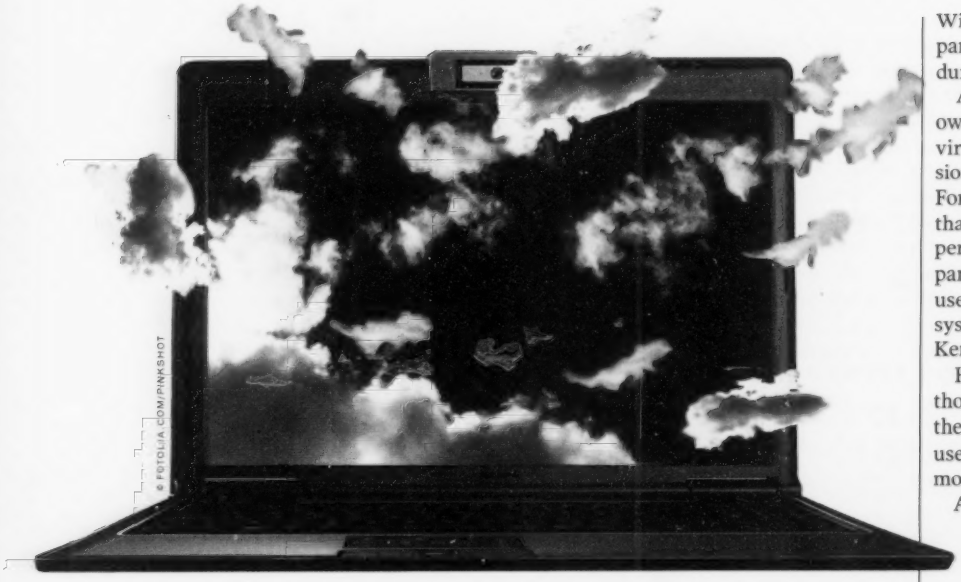

Budget Cuts Push Some to Embrace Cloud Computing

IT managers find the toughest problem is convincing users to switch applications.

By Patrick Thibodeau

BUDGET CUTS in recent months have reduced the city of Miami's IT payroll from 102 to 80 positions, a significant contraction that could have easily led to drastic service cuts and internal morale problems.

But instead of succumbing to melancholy as more and more vacant positions were left unfilled, Miami's IT managers began looking at the possibility that cloud computing technology could be used to maintain popular services — and to generate revenue for the city.

The first payoff from the effort: Miami 311, an online application that lets residents monitor the status of requests for services such as pothole repairs, removal of abandoned vehicles or investigations into reports of code violations.

The city is also assessing the cost-effectiveness of developing potential revenue-generating online applications, which could include custom data aggregation and mashup services that would be sold to businesses.

Budget cuts "have caused us to start evaluating everything," said James Osteen, Miami's assistant IT director.

Miami's situation represents the new world for IT managers: looking closely at cloud services to offset cuts necessitated by flat or shrinking budgets. Most are finding the potential for savings, but they're also encountering user acceptance problems.

Lincoln Property Co. in Dallas started using Google Inc.'s Gmail hosted e-mail service several months ago, after re-evaluating the Novell GroupWise collaboration software it had been using.

Lincoln CIO Jay Kenny said there was general dissatisfaction with GroupWise, so the real estate company replaced it with Gmail during a hardware refresh.

> **"[Budget cuts] have caused us to start evaluating everything.**
> **JAMES OSTEEN,** ASSISTANT IT DIRECTOR, CITY OF MIAMI

An internal total-cost-of-ownership study reached virtually the same conclusion as a recent study by Forrester Research Inc. — that Gmail costs about $8.50 per user per month, compared with about $25 per user per month for in-house systems like GroupWise, Kenny said.

He acknowledged, though, that a good chunk of the company's 1,000 e-mail users aren't happy with the move to the cloud.

An internal survey found that 35% of users find Gmail worse or much worse than GroupWise, compared with 65% who said that the hosted offering is the same, better or much better.

"Change management is the biggest piece" of a migration, said Kenny.

Ted Schadler, an analyst at Forrester, said he would expect similar results if the company had migrated from GroupWise to, say, Microsoft Exchange, based on typical user resistance to change of any kind.

How cloud technologies will fare against Microsoft's offerings, IBM's Lotus Notes and other companies' cloud-based versions of widely used collaboration tools remains to be seen. But one thing is certain: IT managers want to learn all that they can about the cloud.

For example, Michael Fitchett, IT system development coordinator for the city of Chesapeake, Va., recently sought information from Los Angeles' IT department about its move of some 30,000 users from GroupWise to Google Apps.

"We're constantly probing the TCO on every one of our systems," said Fitchett. ■

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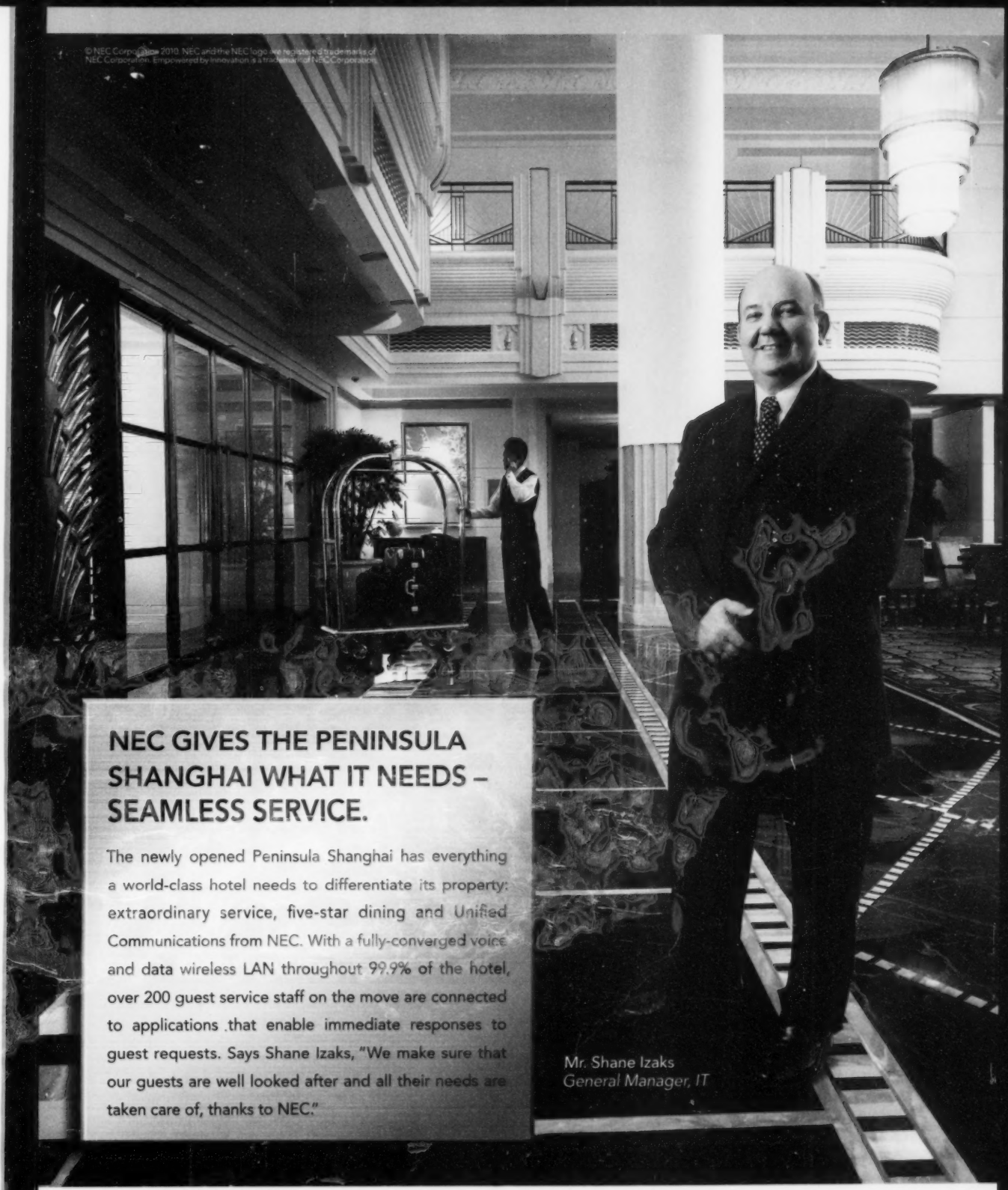

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The newly opened Peninsula Shanghai has everything a world-class hotel needs to differentiate its property: extraordinary service, five-star dining and Unified Communications from NEC. With a fully-converged voice and data wireless LAN throughout 99.9% of the hotel, over 200 guest service staff on the move are connected to applications that enable immediate responses to guest requests. Says Shane Izaks, "We make sure that our guests are well looked after and all their needs are taken care of, thanks to NEC."

Mr. Shane Izaks
General Manager, IT

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DAVID LEDREW, SANMINA-SCI CORP.

Dossier

Name: Manesh Patel

Title: Senior vice president and CIO

Organization: Sanmina-SCI Corp.

Location: San Jose

Something people don't know about him: "I studied aeronautical engineering at Manchester University in England. So I tell my kids I'm a rocket scientist."

Favorite vice: "I don't have time for vices these days."

Hobby or pastime: "Watching English football – or soccer, as Americans like to call it."

Favorite movies: *Schindler's List* and *Dr. Strangelove*

Favorite book: *Sophie's Choice*, by William Styron

■ THE GRILL

Manesh Patel

This CIO **went after tidy savings in the cloud** by targeting the application most employees don't want you to touch — **e-mail.**

It wasn't broken, but he fixed it anyway. After launching an initial pilot, Manesh Patel, senior vice president and CIO at global contract manufacturer Sanmina-SCI Corp., ramped up quickly to move more than 16,000 users onto Google Apps for e-mail, calendaring and contacts — and he began turning off the company's Microsoft Exchange infrastructure. Patel estimates that by moving messaging into the cloud, he's on track to save the business nearly $2 million annually in operating expenses. He explains how he did it.

Why did you move to Google Apps? We had done a lot of the traditional cost-reduction measures over the last several years. We felt that we needed to go after what I call the "high-hanging fruit" and consider structural cost reductions, so two years ago we looked at our messaging environment. Google Apps seemed to be a viable contender.

Were there other motivations besides cost savings? The cost piece was the primary factor and more immediate [benefit]. But there were two other factors. The second was to give ourselves flexibility and options moving forward. We want to leverage cloud-based technologies, [and] we thought messaging

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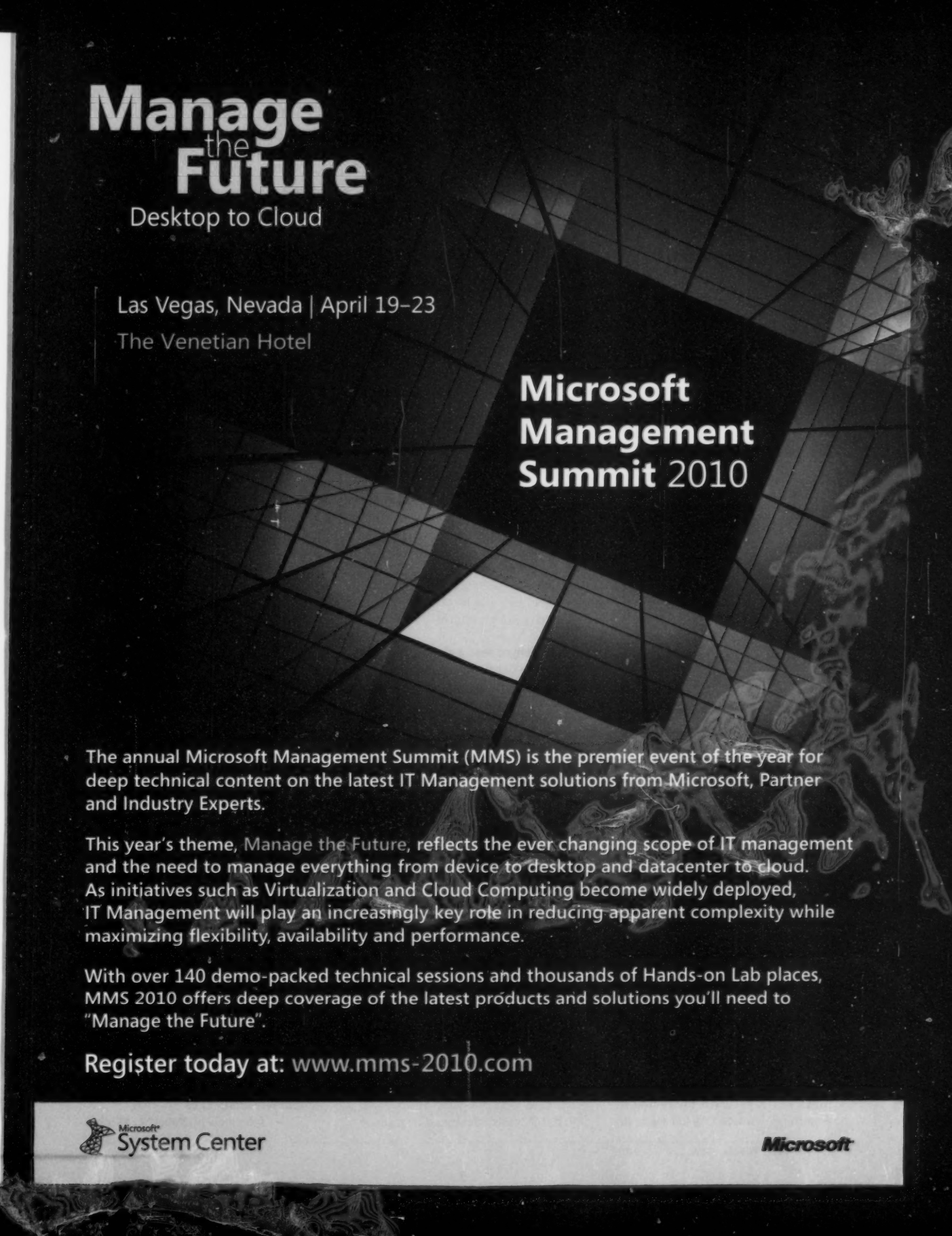
Manage the Future
Desktop to Cloud
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"Frankly, Google has greater resources than we do. They've made some very significant investments in security that we couldn't have done.

Continued from page 18

was the right place to start. Getting to that point where we attain that flexibility to me is a very strategic thing.

The third point was getting our employees to work more effectively together in teams across time and distance. We wanted an environment where these teams could go off and work together in one place that's searchable and accessible without IT having to get involved. What we're doing with Google Apps is leading us toward that. It's not fully there — it may take another two or three years — but that's the direction we're going.

So, how did you get started? We started a research and development project with three or four people. That exercise went on for almost a year. In parallel we started to look at security and some of the other issues you get into with a cloud-based model. We came to the conclusion that this was a very viable technology and the capabilities were fairly comparable to what we were looking for.

Then we went into multiple pilot projects, followed by a global rollout over a period of about four months. We are now using Google Apps across 16,000 employees. We have a handful of Exchange servers and 100 or so employees left to convert. Those are our tougher employees that have specific requirements, and we're still waiting for some gaps to be filled [such as the ability to delegate access to contacts]. We expect those to be closed out in the next two or three months.

What challenges does a cloud-based environment like Google Apps bring? One is to put in a support model that is more appropriate to a cloud solution. Changes come much more frequently. Figuring out a way to have a continuous conversation with our employees about what's changing and making sure they get the most out of the situation, without being too intrusive — we've got to get creative there and make that work.

Secondly, we need to figure out how to roll out the additional Google Apps that we're not fully utilizing today and start employees on the path to using those applications. For example, Google Docs and Google Sites and Google Video. Most of these are self-service, and employees have access to them. We just haven't communicated to employees that they're out there.

Is Google Apps replacing Microsoft Office? We still have Office. If you look at the feature set between Google Docs and Office, there's still a fair gap. Google Docs provides some capabilities, such as real-time online sharing, but it wasn't designed to replace Office. It certainly doesn't have all the capabilities we need.

Not all of your corporate e-mail is outside your firewall. Are you comfortable with the security Google provides? We use our single sign-on infrastructure to access Google Apps. We use SSL. We also looked at what Google is doing on the back end — their policies, procedures and practices. Frankly, Google has greater resources than we do. They've made some very significant investments in security [such as Google File System] that we couldn't have done. In the long term, they're going to be able to put in stronger measures than we can. So we're very confident.

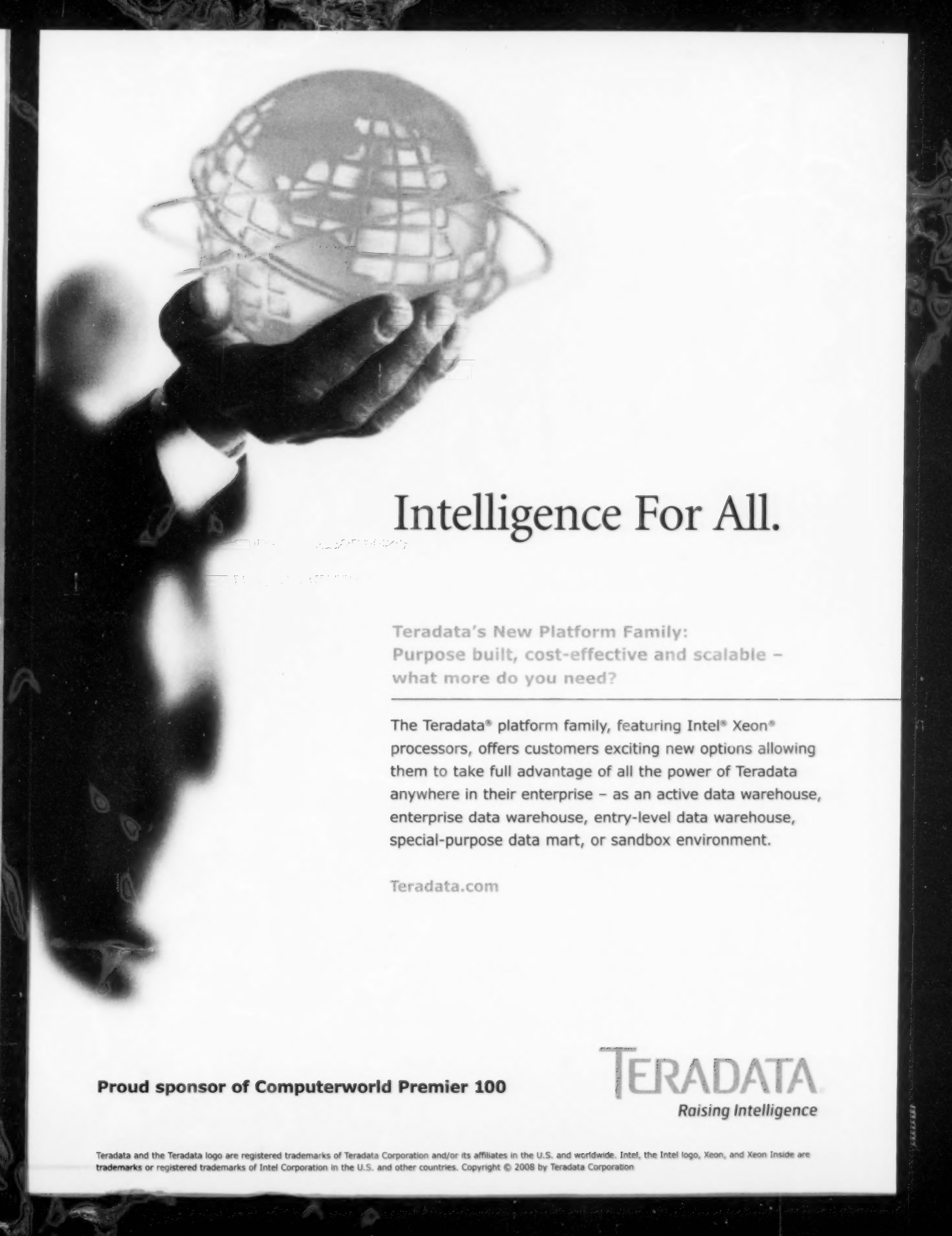
Google has had some well-publicized service outages in the past year. Do you worry about availability? We've seen some impact, [but] overall we didn't expect 100% uptime.

I think they're learning some lessons about consumer-based vs. enterprise-based services. There's less tolerance for downtime, especially for e-mail. Even though our internal solution was fairly redundant and we maintained close to 100% uptime, we had downtime from time to time.

How does an organization determine whether Google Apps is a good fit? For those who have a very standard environment, this is an option. The approach we took is the one we'd recommend: Go get three or four key folks who are out-of-the-box thinkers, who are open to new ideas and technologies, and go try it out. Part of that exercise is to validate, does this fit what I am doing? We spent almost a year doing this.

There are downsides to messing with people's e-mail. Why take the risk? I've thought about this. There's an old saying that necessity is the mother of invention, and in my mind we've changed that to "Necessity is the mother of innovation." We're in a low-cost environment. When you're in that situation, you're more likely to go try something that most other companies wouldn't think about doing. I see that trend in other industries that have comparable challenges.

— *Interview by* **Robert L. Mitchell**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AUTOMATING

THE DATA STORE

SPOTLIGHT | STORAGE

MICHAEL GLENN was wasting storage, and he knew it.

A document-scanning project had created a single, 1.4TB LUN of old court records. Glenn, senior IT manager for the Ohio Court of Claims, knew that only 6% of the files had been accessed in the past year and that the rest shouldn't be on expensive Fibre Channel disk.

His challenge was determining which 94% he could move at any given time to slower, less expensive Serial ATA drives. It turned out he already had the software he needed — Dynamic Storage Technology (DST), part of his Novell Open Enterprise Server 2 implementation — to create and automatically execute file movement policies based on when files were last accessed.

After spending a week tweaking the configurations last spring, Glenn says, "I just let it alone. It's been working great," freeing up at least a dozen Fibre Channel drives. By reducing the number of active files, he also cut his daily backup time from 14 hours to 47 minutes.

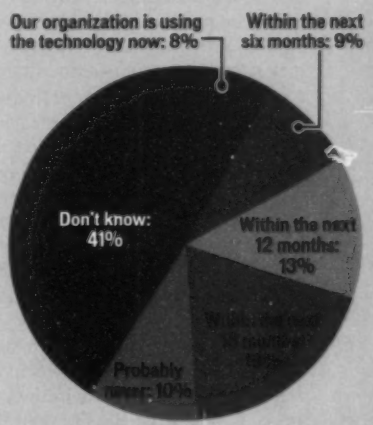
Installation was simple, and configuration required just migrating the old LUN to the SATA drives, renaming that LUN, creating a smaller LUN on Fibre Channel to replace it, and designating the new LUN as the primary volume and the old LUN as the shadow. "Then I started setting up the migration rules," Glenn says. There was no extra cost for DST, he adds, but he estimates he saved about $140,000 through reduced demand for disk drives and power.

Glenn is one of the early beneficiaries of a new technology called automated data tiering, which automates not just the movement of data, but also the task of monitoring how data is being used and determining which data should be on which type of storage. Such automated tiering isn't yet in the mainstream

Smart software can automatically allocate data to the most cost-effective form of storage. But will it work for you? By Robert L. Scheier

ON THE RADAR

When might you consider evaluating or adopting automated data tiering for your organization?


Our organization is using the technology now: 8%
Within the next six months: 9%
Within the next 12 months: 13%
Probably never: 10%
Don't know: 41%

Base: 138 IT professionals

SOURCE: *COMPUTERWORLD*'S EXCLUSIVE STORAGE SPOTLIGHT SURVEY, JANUARY 2010

GETTY IMAGES

LABOR-SAVING WARES

These vendors all provide some type of automated tiering system. Many of them are based on storage federation or virtualization.

- **Compellent** pioneered the technology in 2005 with its Data Progression for NAS and SAN. Its Storage Center 5, announced in January, provides daily, block-level retiering based on data usage patterns, as well as support for SSD and RAID 6 configurations. It remains the market leader, says Forrester analyst Andrew Reichman, because of its automation and ability to retier data units smaller than LUNs. However, he says, it doesn't offer the performance and reliability that larger customers need.

- **FalconStor Software Inc.** has long offered a technology called HotZone for automated, block-based caching of data for read-intensive processes and another called SafeCache for write-intensive operations. Later this year, it plans to add file tiering and an intelligent ILM engine that can automatically retier data based on various criteria, such as age or access rate, as well as capabilities such as support for thin provisioning and de-duplication, says Fadi Albatal, FalconStor's vice president of marketing.

- NAS appliances from **Avere Systems** offer block-level, real-time automated retiering of storage based on historic and predictive analysis of data usage. That includes which groups of blocks are accessed together, and whether the access is random or sequential. Avere appliances can also automatically retier data based on the attributes of new storage types as they're added to the system, such as SSDs, which read data faster than they write.

- **3Par** recently added Policy Advisor, which provides array-based analysis of factors such as capacity utilization and required performance, to its Dynamic Optimization software, which seamlessly moves data between tiers. Because "users demand some control," it offers recommendations, rather than automatic retiering of data, when applications approach customer-defined performance thresholds, says Craig Nunes, vice president of marketing. Dynamic Optimization currently operates only at the volume level, but he says the company plans to "address the need for subvolume tiering later this year."

- **EMC**'s FAST, announced for all of the vendor's primary arrays late last year, continually analyzes read and write patterns and provides wizard-driven suggestions for retiering, says Bob Wambach, senior director of product marketing. Most retiering is currently done in batch mode, he says, but it can be done in real time when "people get comfortable with the technology." FAST currently operates only at the volume or LUN level, but sub-LUN tiering is expected in the second half of this year.

- **F5 Networks Inc.**'s ARX series of file virtualization appliances automate retiering of files based on criteria such as age, file type or last access. They don't require the modification of clients or applications, and they support storage devices from any vendor. However, customers must still create the policies governing file movement, says Renny Shen, product marketing manager for F5's data solutions division.

– ROBERT L. SCHEIER

because few vendors offer the technology and it hasn't been proved to work in very high-end, transaction-intensive environments. Also, it's typically used only within a single vendor's arrays or file system or supports only a limited number of storage protocols or topologies. But for organizations with simpler needs, the automated tiering tools available today are more than good enough.

HOW TIERING BECAME AUTOMATED

"Tiering" means moving data among various types of storage media as demand for it rises or falls. Moving older or less frequently accessed data to slower, less expensive storage such as SATA drives or even tape can reduce hardware costs, while putting the most frequently accessed or most important data on faster, more expensive Fibre Channel drives or even solid-state drives (SSD) boosts performance. Finally, automating the entire process prevents it from getting bogged down in the data classification and policy-setting that hampered earlier "tiering" efforts such as information life-cycle management (ILM).

Storage administrators have long been able to move data between tiers, but they had to manually initiate the process, or at least classify their data and create tiering policies upfront. While some policy creation is still required, the latest crop of automation products is designed to reduce or eliminate the need for staffers to monitor storage systems and find the specific files, volumes or blocks that need retiering and manually move them.

IT managers must first look at which criteria the software can consider (such as how often data is accessed) and whether it can evaluate and move individual blocks or files rather than just larger volumes or LUNs. Since as little as 10% of the blocks in a volume may be active enough to justify a move to faster, more expensive storage, you'll save money if you can move just those, especially if you're moving to expensive SSDs.

Other factors to consider include how quickly the software can detect and react to changes in data usage, and whether administrators can override the automated tiering if it interferes with application performance. Administrators can also use it to predict when certain data (such as accounting files for the quarterly close) will be needed, so the tiering software can update it ahead of time. Finally, administrators need to decide how comfortable they are ceding control to an automated tool.

While IT shops have struggled for years to implement ILM, several users of automated data tiering say they're realizing significant benefits with software that's currently available.

Sandee Sprang, director of IT for South Carolina's Office of the Attorney General, set up a storage-area network with automated tiering using Compellent Technologies Inc.'s Data Progression about five years ago, because she didn't have the staff "to determine what type of records needed to be on the most efficient storage for fast access." Determining the policies for the Compellent system took about four hours, and "the benefits have just been phenomenal," she says, noting that storage management time dropped from as much as 24 hours a week to two hours.

Compellent's block-level tiering also helps maximize disk usage, she says, and it "doesn't mean the entire case file is migrating up and down the tiers" — just "the one brief you're accessing or one transcript from 15 years ago."

Brian Nielsen, technology systems architect at the Salk Institute's Computational Neurobiology Laboratory, works in a scientific computing environment with highly variable workloads and therefore prizes the real-time analysis and retiering provided by Avere Systems Inc.'s network-attached storage ap-

Continued on page 26

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Continued from page 24

pliances. Before he tested, and eventually purchased, the appliances, he says, it was a challenge to move data and to identify which data to move.

Unlike earlier ILM products, which retiered data only sporadically and did so based only on when it was last accessed, the Avere system can "account for many different file I/O attributes and dynamically tier [data]" as application demands change, says Nielsen.

Brian Bosserman, network and systems operations manager at Foster Pepper PLLC, a law firm in Seattle, is experimenting with EMC Corp.'s fully automated storage tiering (FAST) technology on the EMC Celerra NS-480s he runs in his firm's Seattle and Spokane offices. He estimates that it will save 10% of the time he now spends monitoring his servers' storage demands and then planning and executing the retiering of virtual machines among them. With FAST, he says, he hopes to let EMC's Rainfinity File Management Appliance do the monitoring and moving "based on policies I give it."

Installing FAST "was very straightforward," says Bosserman. "It comes as a VMware [virtual] appliance. I just imported the FAST appliance, started it up as a Unix box, then got into it through the Web interface and managed it and set it up from there."

However, automated data tiering does require some upfront effort classifying data and setting the policies that determine when certain types of data need to be moved (based on age of the data, application performance, or legal and regulatory requirements). Conventional wisdom says all that work crippled earlier "tiering" approaches such as ILM. But at least one major user — Intel Corp. CIO Diane Bryant — is putting a formal ILM process in place before looking into automated tiering. Bryant began an ILM effort last year to cut Intel's 35% compound annual growth in storage needs, and so far 40% of the company's structured data and 30% of its unstructured data is governed by ILM.

Sanford Coker, Unix clinical team lead and senior Unix administrator at Weill Cornell Medical College, is starting to use 3Par Inc.'s Policy Advisor in his development and test environment. Installation was easy, he says, and creating each policy takes only about 30 minutes, although tweaking them for optimum performance takes another week or so. He says his "very conservative" estimate is that he can cut his use of Fibre Channel disk by about 25% by moving data onto less-expensive, higher-capacity SATA disk.

READY, SET, IMPLEMENT?

Think your organization is ready to tap into the benefits of automated data-tiering technologies? Consider these issues first:

1. Does it provide the mix of file- and block-level tiering you require?
2. Can you override the automatic tiering for performance or data-retrieval reasons?
3. Does it support features such as thin provisioning or de-duplication if you're using them?
4. Does it, or will it, support sub-LUN tiering?
5. Does the vendor provide a growth path for further automation?

PAIN RELIEVER

What do you perceive to be the benefits of automated data tiering?

- Helps drive down total cost of ownership: **57%**
- Helps manage exploding data growth: **57%**
- Increases application performance: **43%**
- Requires fewer storage administrators to manage: **34%**
- Helps achieve energy efficiency: **29%**
- Eliminates the costly and wasteful technique of short-stroking Fibre Channel drives: **25%**
- Improves I/O function for SSDs: **24%**

HEADACHE TRIGGER

What do you perceive to be the barriers to automated data tiering?

- Adds another layer of complexity/another point of failure: **59%**
- The technology isn't yet mature: **47%**
- Data could be misclassified without human oversight: **41%**
- Too few vendors currently offer the technology: **34%**
- My organization's storage needs are already well managed: **18%**
- Doesn't measure up in terms of ROI: **18%**

Base: 138 IT professionals

SOURCE: *COMPUTERWORLD'S* EXCLUSIVE STORAGE SPOTLIGHT SURVEY, JANUARY 2010

WHAT'S NEXT

As it matures, automated data tiering could help drive adoption of SSD, because it will help administrators tune their tiering enough to make sure they're getting the maximum benefit for the highest-performing but most expensive storage medium. But for now, according to storage administrators, vendors and analysts, SSD is too expensive for most mainstream users.

Andrew Reichman, an analyst at Forrester Research Inc., says it's still more cost-effective to trade space for performance by "short-stroking" disk drives — intentionally using only part of their capacity to improve their performance. Pricing for tiering capabilities ranges from free (for software that's already included in products that are available now) to more than $50,000 for systems such as Avere's 2300 FCN. Users must, of course, also factor in the cost of classifying data and creating tiering policies.

Major vendors such as EMC are also working to make automated data tiering more "application-aware," meaning that the software will understand the I/O demands and other usage patterns of popular applications and automatically retier to meet those needs. Such interoperability will require standards for the information about the data being retiered. One such metadata standard is being developed by the Storage Networking Industry Association.

Those standards could pave the way for easier tiering across devices or file systems made by different vendors. They could also make it possible to tier data between an in-house data center and storage in the cloud.

Until then, the early wave of automated data-tiering products is already taking some of the work out of putting the right data on the right storage medium at the right time. ■

Scheier *is a veteran technology writer. He can be reached at bob@scheierassociates.com.*

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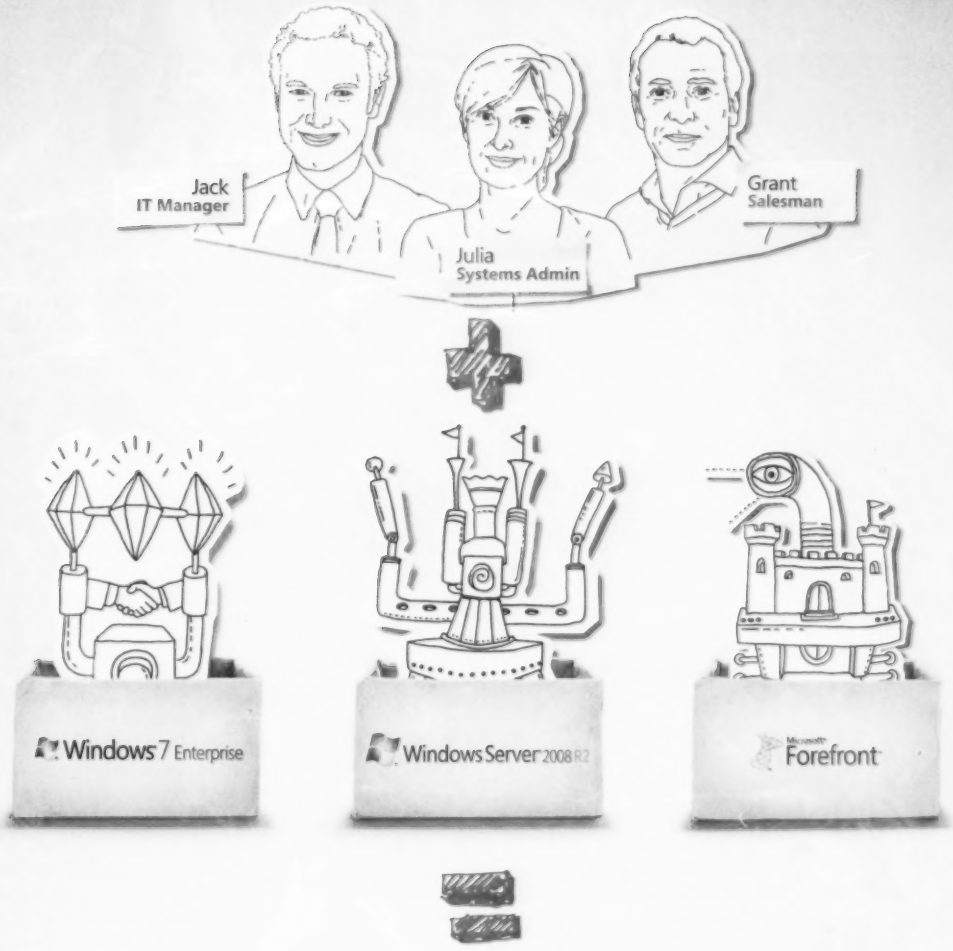

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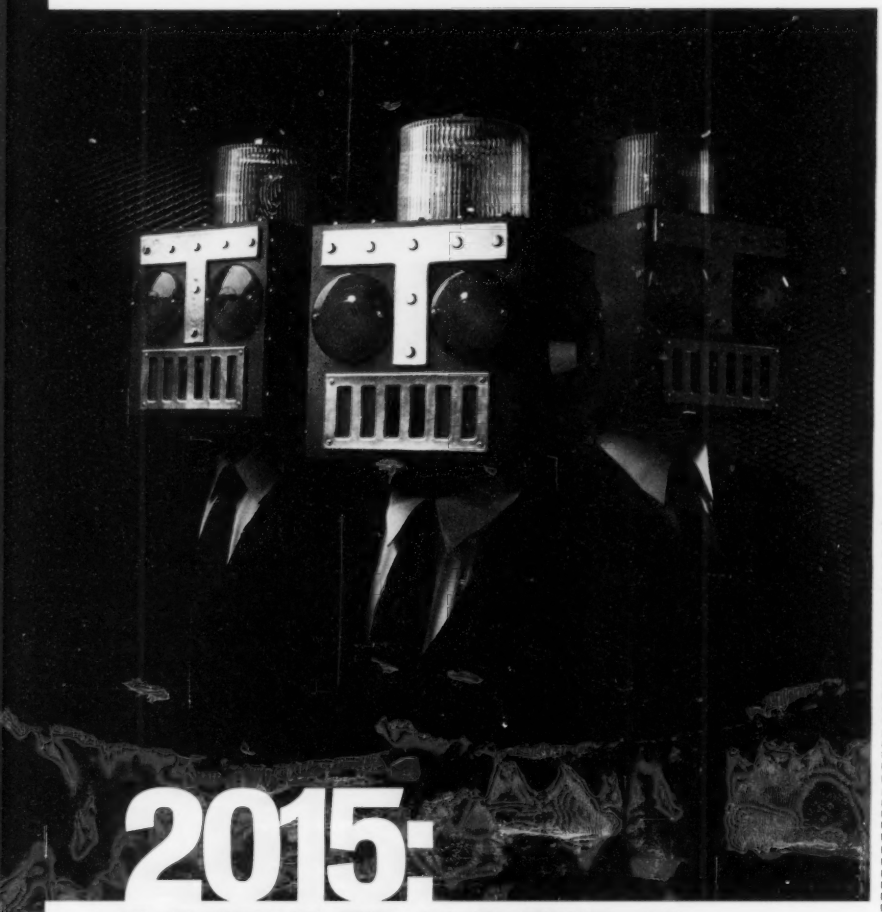

2015: WHO WILL RUN THE DATA STORE?

Automated storage technologies free up storage administrators' time – but maybe a little too much.

By Stacy Collett

WHEN IT COMES to job stability and pay, storage administrators had it made in 2009.

In a volatile economy, as salaries for other IT positions were whittled down or saw little or no increases, the average salary for a storage administrator with 10 to 20 years' experience averaged more than $100,000 last year, up 3.2% from 2008, according to *Computerworld*'s 2009 Salary Survey.

With their Fibre Channel mastery and a personal fiefdom of equipment, protocols and activities that nobody else touches, storage administrators enjoy a unique degree of job stability. But now there's a crop of new storage automation technologies that promise to change the way these IT professionals do their jobs and may even require them to (gasp!) share control of the storage kingdom.

"Storage is definitely at a point of change right now," from both a networking and organizational perspective, says Andrew Reichman, a storage analyst at Forrester Research Inc. Fibre Channel-centric storage is slowly moving toward shared Ethernet, and automated storage technologies allow data and application managers to store data themselves. Add to the mix automated data tiering (see story, page 22), thin provisioning and information life-cycle management technologies, and suddenly the once ironclad position of storage administrator appears to be showing signs of rust.

As data storage becomes more automated and efficient, will the skills of today's typical storage administrator become less valuable?

In five years, who will be running the storage shop? We asked storage administrators, industry associations and storage experts to weigh in on data automation's impact on careers.

THE BIGGEST THREATS

Application-centric storage is one of the biggest threats to today's storage administrator role, Reichman contends. "We're starting to see more examples of applications being able to do more storage management natively," he says. "Oracle has [automated storage management] tools, and they have Exadata, a purpose-

Continued on page 30

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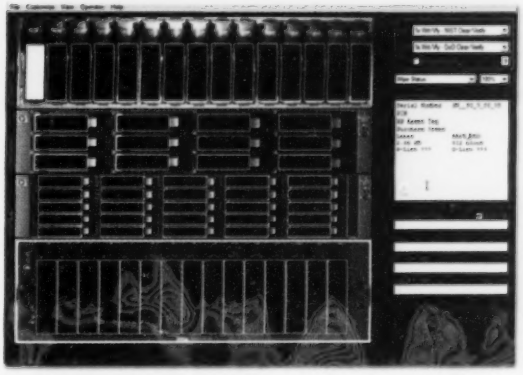

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Continued from page 28

built database storage platform. The application *knows* the context of data — it knows more about what the data is doing, what it's going to be used for, when it needs to be archived. So I think it's possible that applications could do more of the storage tasks than an independent storage vendor."

In essence, application-centric storage allows storage administrators to revert to basic disk systems while the advanced management of data happens in the application.

How it could affect storage administrators: "The big difference is, you wouldn't have the entire company's storage sitting in one group," Reichman says. "I predict that each major application stack would have its own storage experts sitting side by side with DBAs and the network team to make it all happen. So the reporting structure would change, and the storage director would be one of the most at-risk positions."

Automated tiering technology could also lead to a decrease in reliance on storage administrators, industry watchers say.

Tiering storage ranks among IT's top five initiatives over the next two years, along with storage virtualization and "data reduction" technologies, according to Enterprise Strategy Group, an IT analyst firm in Milford, Mass.

Today, only a few vendors offer automated storage tiering, including Compellent Technologies Inc. and EMC Corp., which in December rolled out its fully automated storage tiering (FAST) technology across three lines of storage arrays. The technology will allow data volumes to be automatically moved between tiers of storage, depending on business performance requirements.

How it could affect storage administrators: Right now, tiering requires storage administrators to figure out the criticality of application data, test the performance of configurations, plan the move, test the ramifications and execute the move. All of that is time-consuming. If it were automated, there would be less reliance on storage administrators.

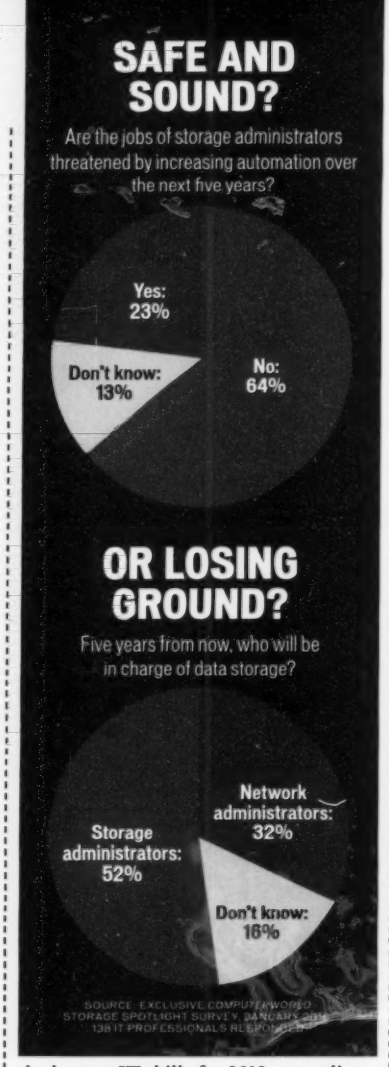
The move from Fibre Channel to cheaper, shared Ethernet also threatens the role of storage administrators.

A combination of networking and storage expertise ranked third among the hottest IT skills for 2010, according to *Computerworld*'s annual Forecast survey. The demand for people with those skills is likely connected to the growing complexity of networks and to the stresses placed on them by virtualization and newly popular approaches to application delivery, such as cloud computing and software as a service, says Dave Willmer, executive director of IT staffing firm Robert Half Technology, and a *Computerworld* columnist.

At Scottrade Inc., CIO Ian Patterson sees the online financial services company dabbling with a converged infrastructure in 2010, driving a need for people with a mix of server, software and networking skills to support networked storage and server devices contained in a singie chassis.

"This will change the market for the type of people we need," he says. "It won't be just a guy who knows EMC and Hitachi storage, but [one] who knows server, storage and networking all in one device."

How it could affect storage administrators: Networking professionals who are experienced in Ethernet could elbow in on the storage administrator's territory.


SAFE AND SOUND?
Are the jobs of storage administrators threatened by increasing automation over the next five years?
Yes: 23%
No: 64%
Don't know: 13%
OR LOSING GROUND?
Five years from now, who will be in charge of data storage?
Network administrators: 32%
Storage administrators: 52%
Don't know: 16%
SOURCE: EXCLUSIVE COMPUTERWORLD STORAGE SPOTLIGHT SURVEY, JANUARY 2010, 138 IT PROFESSIONALS RESPONDED

CHANGE ON THE WAY

All is not bleak for storage administrators, analysts agree. "Jobs don't go extinct in IT, they just change," says David Foote, CEO and chief research officer at Foote Partners LLC. Just as storage administrators had to brush up their skills and certifications with the arrival of storage-area networks earlier in the decade and, later, virtualization, they will have to prepare themselves for the coming wave of automation.

What's more, a converged network doesn't necessarily mean a convergence of storage and network positions, says Wayne Adams, chairman of the Storage Networking Industry Association. "A storage administrator is going to be making sure data is always available, accurate and can be restored. A network administrator focuses on connectivity and bandwidth. We don't see an über skill set" with both roles combined in the future, says Adams.

WHAT YOU CAN DO NOW

Storage administrators should pay close attention to the application teams whose data they store, in order to understand the businesses uses of that data. "They may someday report to those database teams," Reichman says. But storage administrators will still need to provide data protection, replication and provisioning, he adds. "So their skill set is going to remain valuable."

There's still a lot of uncertainty about where the market for automated storage technologies will go. "If you look at what [technology] changes jobs in IT, and what we were doing five years ago, it's a combination of technology maturation and innovation," Foote says. "Bill Gates completely missed the Internet in his first biography. Even the best and brightest sometimes have no idea what's going to happen." ■

Collett *is a* Computerworld *contributing writer. Contact her at stcollett@aol.com.*

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■ OPINION

Preston Gralla

E-mail Is Dead. Long Live E-mail!

GIVEN THE GROWTH of social networking services such as Facebook and Twitter, and the increasing use of collaboration tools such as Microsoft SharePoint, you may begin to wonder whether e-mail's day in the sun is coming to an end.

Once the primary way we communicated electronically, e-mail has begun to seem less central to our daily lives. It feels as if a tipping point has been reached. Businesses recognize the power of social networking sites to attract customers, build buzz and perform sophisticated research, and they see that collaboration tools can allow employees to work with one another and with people outside the company.

E-mail, it seems, is no longer the center of the universe. So is it time to say goodbye to it as the core of business and personal communication? Will e-mail go the way of the physically mailed letter — useful for certain purposes, but not the primary way that people keep in touch and collaborate?

Not if Microsoft or Google has its way. Both companies — and other, smaller ones — recognize the power of social networking and collaboration tools and understand how they're endangering e-mail. And both are looking at ways to merge them with traditional e-mail and make e-mail once again the center of the communications universe.

In the world envisioned by Microsoft and Google, e-mail would become a hub for all electronic communications. It would merge all contacts from all services into one location, allow you to interact with others on social networking sites without leaving your e-mail client or service, and aggregate all communication, including collaboration, in one location.

Both Microsoft and Google have already taken initial steps toward making it happen, as have other companies. Microsoft, for example, recently released the beta of Outlook Social Connector, which links Outlook to social networking sites. An individual connector is already available for LinkedIn, and one is in the works for Facebook. You can expect one for Twitter as well. The Outlook Social Connector will ship as part of Outlook 2010 and is available as a free download for Outlook 2003 and 2007.

■ Companies, including Google and Microsoft, recognize how social networking is endangering e-mail.

Microsoft has also released detailed information about Outlook's .pst file structure so other developers can write applications for it and link to it — and don't be surprised if a good number of those applications are related to social networking.

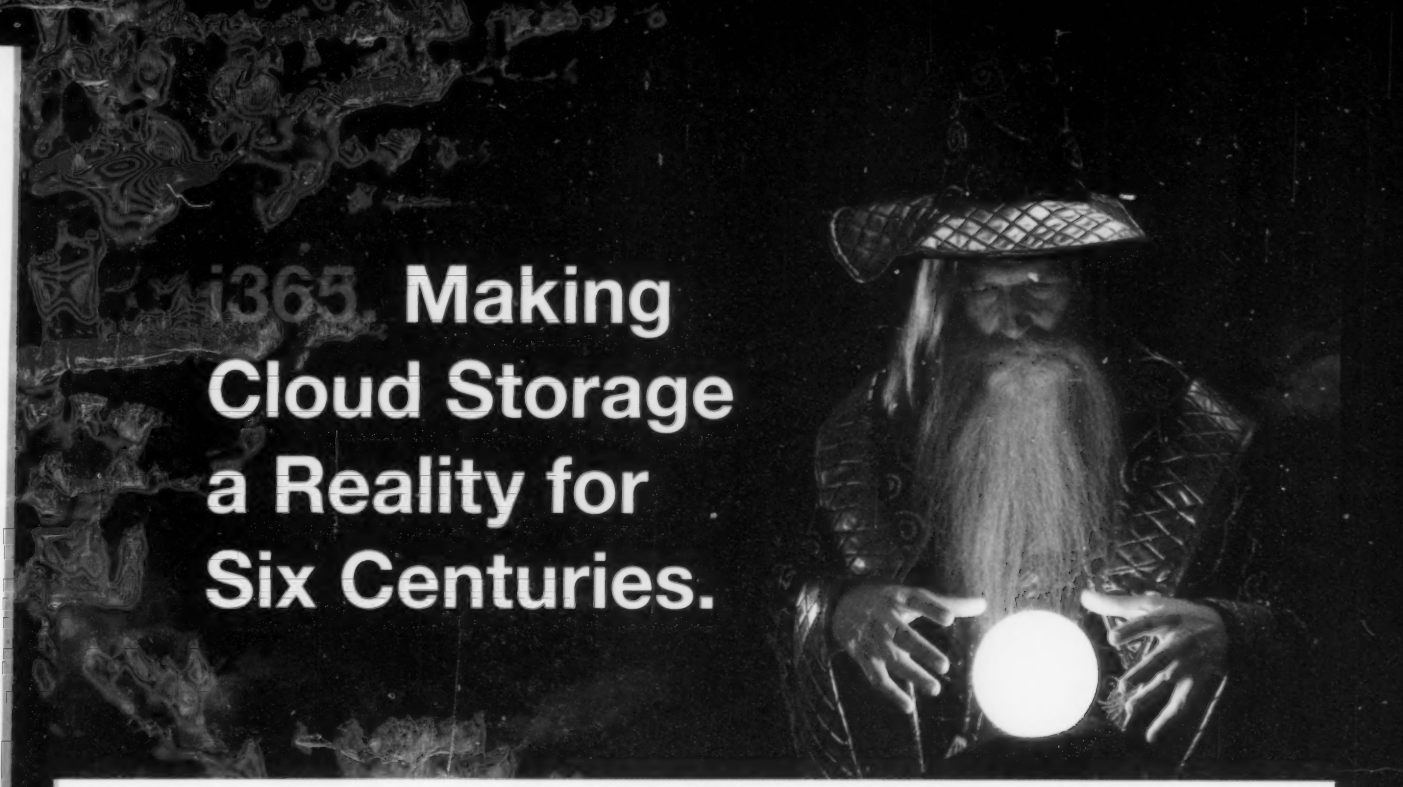
Google, meanwhile, released Google Buzz, a somewhat confusing tool designed to integrate social networking with Gmail. Surprisingly, this is one instance where Microsoft has done a better job than Google, but expect future versions of Buzz to be more impressive.

Microsoft and Google aren't the only ones getting into the act. The free Outlook add-in Xobni already connects Outlook to Facebook and LinkedIn, and it does a better job of it than Outlook Social Connector. Another free Outlook add-in, Mainsoft's Harmony, connects Outlook to Google Docs and SharePoint document libraries to make collaboration easier.

All of these tools, as useful as they are, are still somewhat rudimentary. They can't, for example, display ongoing Twitter streams and don't allow for full integration with social networking sites. But that's because they're new. Eventually, your e-mail client or service will become a central hub for all of your electronic communication.

This means enterprise IT will struggle with a host of issues, including privacy and security challenges and questions about how much two-way integration to permit with social networking sites. But the benefits far outweigh the costs of solving those problems. E-mail, both in business and for consumers, will once again reign supreme. ■

Preston Gralla *is a contributing editor for* Computerworld.com *and the author of more than 35 books, including* How the Internet Works *(Que, 2006).*



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Help Desks Under Pressure

Hit hard by the recession, corporate help desks remain woefully understaffed and overworked, with little relief in sight.

By Cara Garretson

FOR CORPORATE IT managers, the new year brings hope that budgets will grow, workloads will return to normal and the worst of the recession is over.

Yet down in the tech department trenches, help desk professionals aren't feeling so optimistic. Struggling to support end users, help desk technicians say that because of staff reductions, aging technology and higher incident rates, their jobs have gone from bad to worse, although they acknowledge that in this economy, they're lucky to have jobs at all.

But is there a silver lining to the long hours, reductions in pay and benefits, and job insecurity that help desk professionals are currently enduring?

Perhaps, industry watchers say. Many help desk staffers are shouldering new responsibilities and demonstrating leadership qualities that could serve them well once their employers emerge from the economic cloud. Those who have successfully taken on new tasks, or even additional titles, during these tough times could be in a position to advance when their employers begin promoting and hiring again — if they can make it to that point.

That, in a nutshell, is the state of the help desk for 2010: hanging on and hoping for better times.

At California State University, Stanislaus, help desk lead James Koelewyn, along with a few part-time assistants, supports 10,000 users — a combination of students, faculty and staff.

The university has a separate department for desktop support when problems escalate, but Koelewyn and his stitched-together team provide triage for all the incidents that come in over the phone, via e-mail and at the walk-up help desk located in the university's library.

"Right now, with the state of California budget cuts, the problem is keeping [positions]," says Koelewyn, whose pay was cut by 10% in 2009. "They keep cutting back; pretty soon I may be looking at being the only one manning the help desk."

That would put the ratio of end users to help desk staffers at 10,000-to-1. Today, it's roughly 10,000-to-3, though his four part-time student assistants don't have clearance to perform all the tasks that Koelewyn can. The most help he's had in the eight years he's been at the university is eight part-time student assistants.

Despite the lack of staff, Koelewyn feels that the help desk is doing a good job of supporting the user community; it often achieves his goal of responding to trouble tickets within an hour during business hours.

He has a long list of desired improvements that would make the help desk more efficient, such as a central knowledge base, remote control capabilities and a database of standard responses to common problems. However, even those relatively inexpensive items require employee hours, which are scarce.

"We're already on furloughs, but [in 2010] they're talking about not having furloughs and cutting staff instead," says Koelewyn.

GROWING RESPONSIBILITIES

Other help desk professionals find themselves stretched in different ways. As companies have reduced their ranks, many help desk employees have had to take on additional titles, such as systems administrator or network manager, often without a pay increase

Continued on page 36

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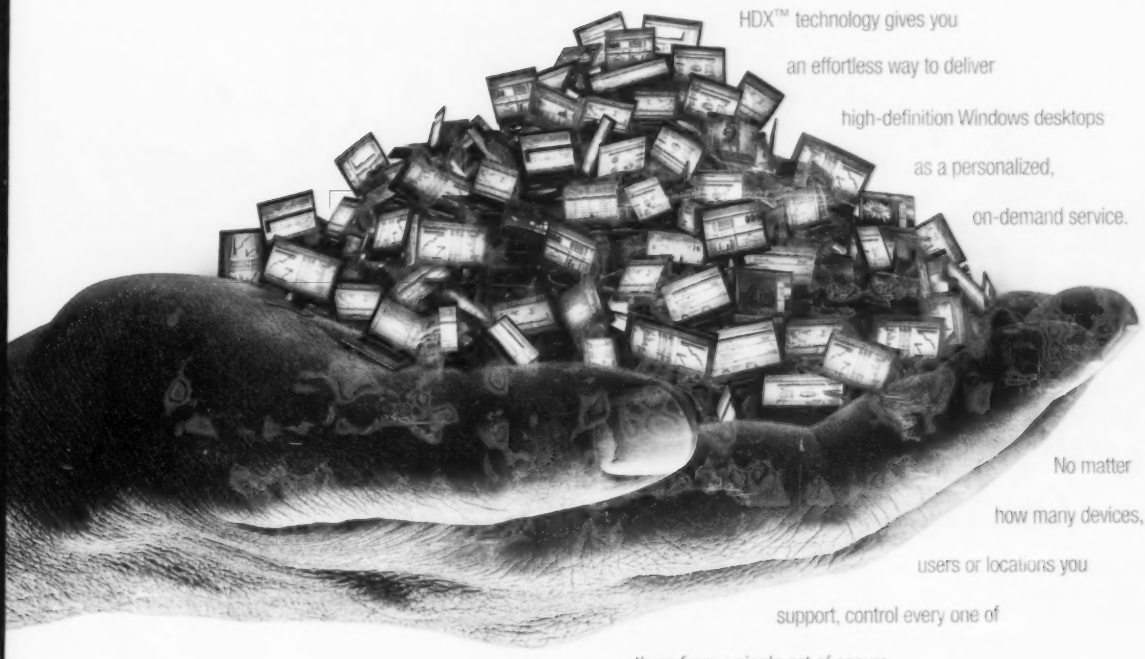

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Continued from page 34
or other forms of recognition.

Adam Frost joined ID Solutions, an IT service provider in San Diego, about a year ago, and he quickly added network administrator to his current title of help desk manager. He is one of seven help desk workers supporting 1,100 users.

Although his network administrator tasks, such as setting up servers, don't add to the number of end users he supports, they do require him to put in more hours, sometimes on the weekends.

While Frost feels that his company doesn't fully appreciate the contributions the help desk makes to the business — until recently, his department's office at one ID Solutions location was a supply closet — he's not about to complain, not now at least. "It is what it is," says Frost of his situation. "I'm happy to have a job."

Other help desk professionals find themselves performing tasks that fall outside the realm of the IT department altogether. Dustin Hane is systems administrator at International Commerce & Marketing Corp., a catalog and Internet marketing and manufacturing firm in Milwaukee. He and another staffer are responsible for providing help desk support to the company's 143 employees.

Hane: "[People] need to be very happy that they have a job."

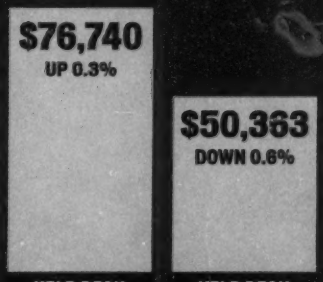
After the company laid off 50 people during the second half of 2009, Hane also began taking calls from external customers wanting to place orders or looking for general customer service.

"I don't mind doing the extra work, says Hane, although he does acknowledge that it keeps him "really busy." What does bother him? "The people running around complaining about how much work they have to do and how much they hate their job," he says. "They need to be very happy that they have a job."

Instead of reducing head count or adding responsibilities, some companies are dealing with the uncertain business climate by forgoing hiring full-time help desk staffers altogether and using contract or part-time workers to whom they don't need to pay benefits.

Diminishing Pay

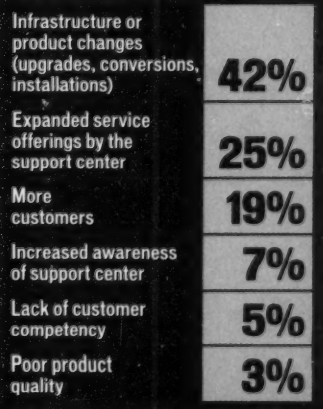
Help desk managers saw their total compensation stay roughly flat in the past year. And their staff-level counterparts didn't fare any better, with overall pay dropping slightly for help desk specialists.



SOURCE: *COMPUTERWORLD*'S 2010 SALARY SURVEY; 4,852 IT RESPONDENTS

Mounting Work

The number of incidents help desks are dealing with rose 8% from 2008 to 2009, according to the 2009 Practices and Salary Report from HDI. Here are some of the reasons for the increase:



SOURCE: HDI SURVEY OF 1,000 SUPPORT CENTER MANAGERS IN 11 DIFFERENT INDUSTRIES FROM MAY THROUGH JULY 2009

© FOTOLIA / NATUL RICH

While such moves may cut costs in the short term, piecing together a department from contract and part-time workers isn't a tenable long-term strategy, contends Don Clark, a help desk analyst at Health Care Service Corp. (HCSC), which operates Blue Cross and Blue Shield companies in several states.

Clark isn't employed by HCSC; he works for Technisource Inc., an outsourcer that provides help desk staff to HCSC on a contract basis. Clark says that the arrangement represents a troubling trend among larger companies for myriad reasons: It's not a cost-saver in the long run, once the middleman's fees are factored in; there's a higher turnover rate among contract workers; and the quality of service provided isn't comparable, which leads to a higher incidence of call escalations.

"The biggest issue [on the help desk] is the sheer size and complexity of systems," says Clark, emphasizing that his strong opinions on the subject of help desk outsourcing are his own.

"We've got hundreds of programs involved, but no one can be an expert in enough of them," which means an excessive number of trouble tickets are generated to get a problem escalated to the next level of support. It's preferable to get a solution without escalation, Clark says, "but given the size and complexity of the systems, that's not always possible" using outsourcers.

QUALITY CONCERNS

On at least one point — quality of service — Clark isn't alone in his assessment.

Robert Last, content manager at HDI, an IT service and support association, says that while many companies still hire contractors to provide help desk support, it's a trend that's winding down as firms find that the quality of service isn't as high as they had expected.

"Some organizations just want people to answer the phone, [but] you get what you pay for," says Last. "Business leaders and consumers have soured on outsourcing because of the lack of service; it's now a marketing technique to [be able to] say, 'We answer our own phones.' "

Indeed, only 9.2% of the 1,000 re-

spondents to HDI's 2009 Practices and Salary Report survey said they were currently outsourcing help desk staff, down from 11.3% in 2008. And in 2009, just 4.6% of the respondents said they were considering outsourcing, compared with the 10.2% who indicated that they were considering it in 2008.

When respondents to the 2009 survey were asked why they weren't outsourcing help desk duties, "lack of control over service" was the No. 1 answer, chosen by 59.3% of those polled, while "service quality" was chosen by 53.7%.

While help desk professionals are being stretched thin, the number of problems they are dealing with on average grew in 2009. According to HDI, 70% of help desks saw more incidents last year (see chart at left), even though most of them weren't supporting more customers. Help desk staffs spent 75% of their time dealing with such incidents — up from 67% in 2008 — which in turn gave them less time to train, plan and develop strategies, says HDI.

And help desk pay certainly isn't increasing along with those oversized workloads and added responsibilities. According to *Computerworld*'s 2010 Salary Survey, total compensation (salary plus bonus) for help desk managers and staffers has stayed flat in the past year.

"Help desk managers are continuing to be pressed to do more with their current resources," says Rich Hand, HDI's longtime executive director of membership, who recently left the organization to start a new venture. "They are taking on more responsibility and expanding their role."

In the long run, taking on more and varied tasks could aid help desk workers in their quest for advancement. Shouldering multiple responsibilities may expose them to more aspects of the business and to different managers than more sheltered help desk employees traditionally encounter.

"Help desk managers are getting involved in the process, and that's vital in service management," says Hand. "They're cross-functionally working with other organizations of the business, and they're starting to be seen as respected IT professionals instead of folks who're just stuck fixing problems." ■

Garretson *is a freelance writer in the Washington, D.C., area. She can be reached at caragarretson@gmail.com.*

Turning Lemons Into Lemonade

David Gray hopes the added responsibilities he has carried during tough economic times will help him in the long run. Gray was hired two years ago as the IT support specialist at Advance Education Inc., which operates schools in California for children and adults with autism and other behavioral issues.

He runs the help desk for the company's 350 users in multiple locations, and once he earned the required certification, systems administrator functions were added to his job. Gray also served as acting IT manager for three months while the company was looking to replace his former boss.

David Gray

"I got no additional compensation, no meetings with the board. I just knew the job had to be done," he says of the three-month stint.

Even if Gray's title doesn't reflect all he's done, the experience has given him the skills and the attitude to take on a larger role at some point – either at his existing employer or elsewhere, he says.

"There's a big difference between an IT professional and someone who works on computers," Gray says, adding that a professional must constantly expand his or her skill set, whether there's a recession on or not. "The second you stop learning," he says, "you're outdated and you're out of a job."

– CARA GARRETSON

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Developing Your IT Road Map

Here's how to get started with an enterprise architecture project.

By Jennifer Pfaff

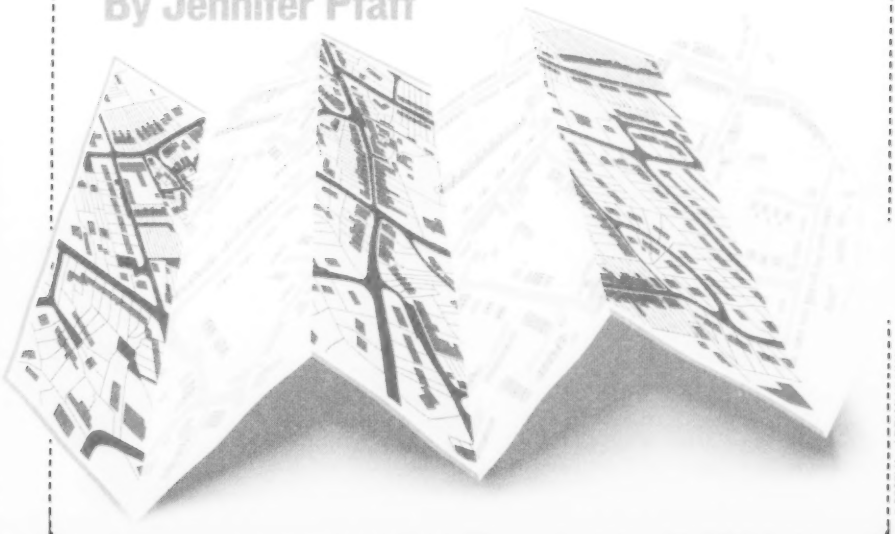


PHOTO: ADRIAN HILLMAN

The Four Phases of EA

The first phase of an enterprise architecture project paves the way for the others.

PHASE 1 The Foundation, the As-Is and To-Be Architecture Models, and the Transition Model. This phase establishes the criteria used to guide decisions about IT, models the IT architecture today, identifies where IT should be in three years and then describes how to get there.

PHASE 2 IT Vetting and Communication. This involves an in-depth review of IT projects and the road map, as well as the plan for communicating with the business about the project.

PHASE 3 Business Alignment and Governance. This phase contains a review of the business needs and the development of the processes needed to support them. It is interactive with the business.

PHASE 4 Deployment, and Portfolio Metrics. The three-year road map is implemented, and metrics are used to continually track, review and refine the programs.

– JENNIFER PFAFF

A SUCCESSFUL enterprise architecture project can help unlock an IT department's true value to the business it supports. EA, as a discipline, allows an organization to compare its near-term business objectives with its current technological capabilities and then make intelligent decisions about what it can reasonably expect to accomplish. Furthermore, the gaps that are identified represent opportunities for future IT investments.

Sound like a lofty endeavor? It is, but getting there isn't as difficult as you might think.

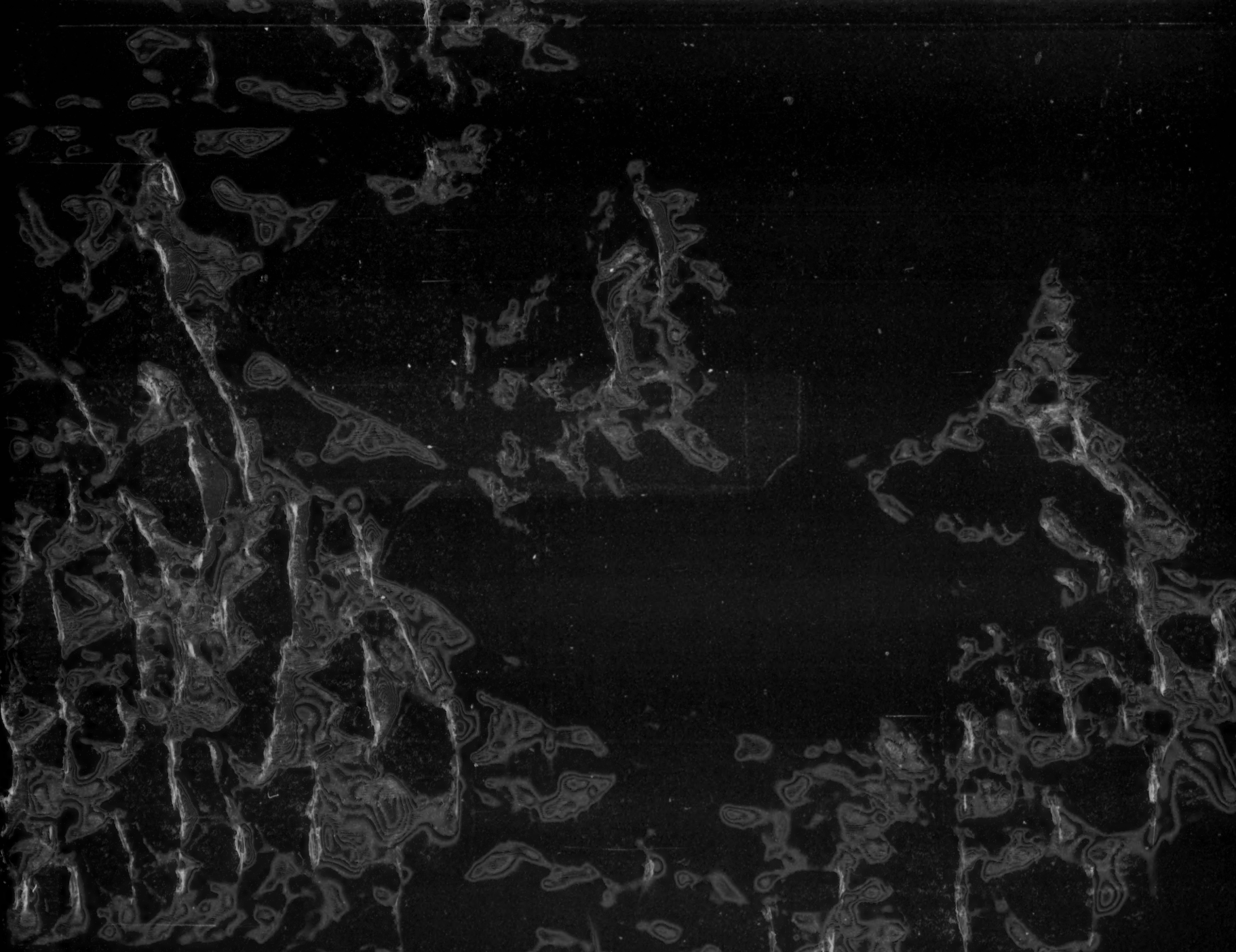
Developing a good enterprise architecture program shouldn't require a dedicated full-time staff of specialists. A team led by a strong, focused manager can jumpstart an EA program by creating small deliverables that the business stakeholders can understand. (Hint: If your program's objectives can't be described in an elevator speech, have your team step back and simplify.)

Work with representatives from the business side to set up four easily understood documents; if the business people have a chance to offer input, they should be able to understand the business value of each phase of your EA program.

This discussion will focus solely on Phase 1 of an enterprise architecture initiative. This phase should include the following:

- The Foundation (principles and objectives).
- The As-Is Architecture Model.
- The To-Be Architecture Model.
- The Transition Model (i.e., a road map).

If you take the time to fully develop each of those documents, you'll lay the



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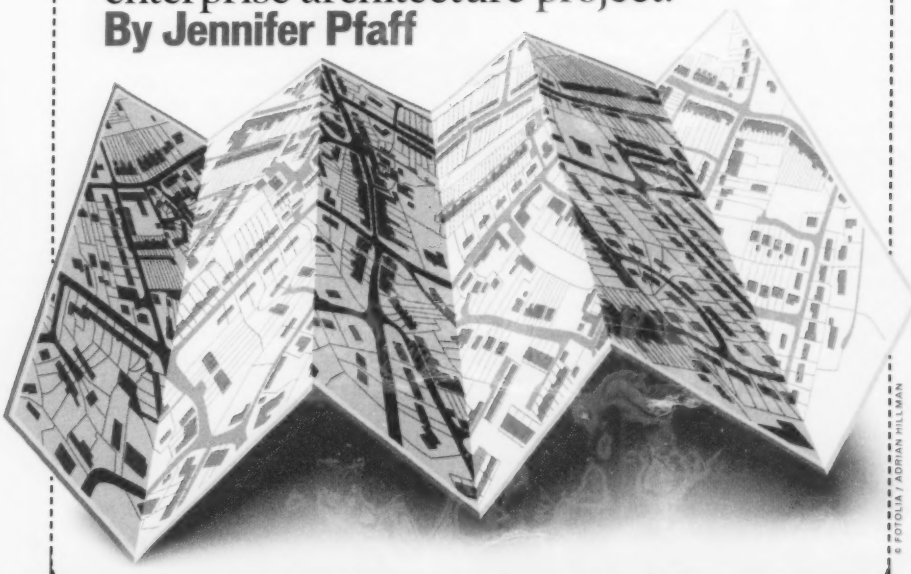

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groundwork for discussing valuable opportunities for improvement.

The Foundation document should state your organization's definition of EA success. You need to be specific here; avoid big words and esoteric ideas. Ask yourself what criteria will be important when you're deciding how to balance IT-driven objectives with companywide interests. You might end up with principles like these:

- We evaluate solutions based on scalability, extensibility, interoperability and compatibility.
- We use off-the-shelf tools.
- We integrate enterprise security into all aspects of technology, from the physical to the virtual.

Whatever they turn out to be, your principles should be reviewed with all members of the IT team and the business team. They will be used to drive all future discussions and decisions.

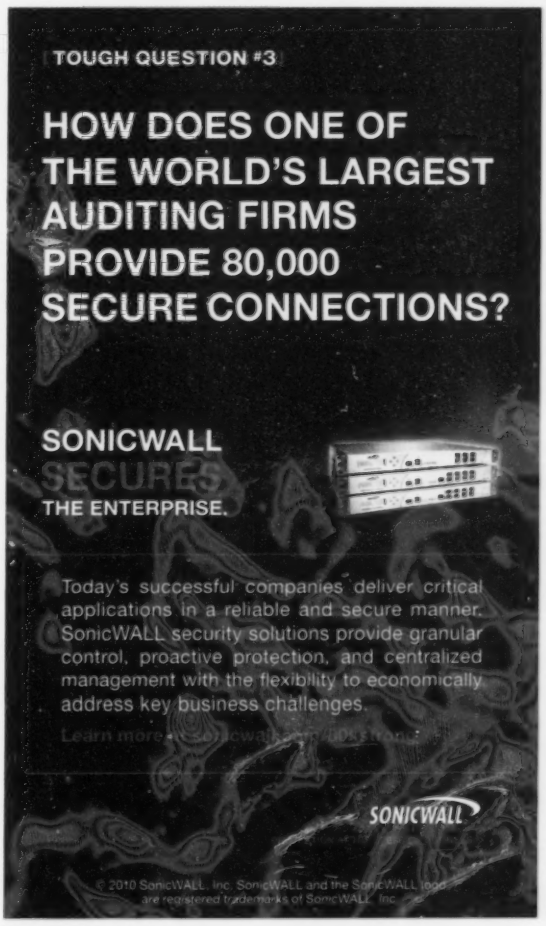
Once your Foundation is complete, you can move on to documenting both the As-Is and To-Be Architecture Models. These documents should graphically represent the organization's current and desired enterprise architectures. Remember, simple is better. Try to keep each model to one page. If you're stumped, search the Internet for sample frameworks and look for examples from parallel industries. Be patient; developing the best model for your organization will require a few iterations.

In the beginning, there may be a learning curve as the IT team determines the appropriate level of detail. There will be a temptation to list the hundreds (or thousands) of software applications that your organization has, but it's the summarized information that is critical to capture. Keep your EA team focused on developing a model — the details can be filled in as the team moves forward.

Your model could have a hierarchy like this:

- Enterprise (the complete environment).
- Domains (independent categories, like Infrastructure).
- Categories (logical subsets, like Network/Telecom).
- Elements (the most granular support functions, like Routers).

Once your team defines all the relevant technology domains for your business, the elements can be prioritized according to the ROI for each element's improvement opportunity. For example, the elements could be color-coded, with red drawing attention to a high ROI opportunity, yellow for medium ROI and green for a low ROI element. Don't be afraid to change the ranking of each element on the To-Be Model as new information becomes available and corporate strategies change.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THE ROAD MAP

Finally, you'll need to explain how you plan to help the business get from the As-Is Model to the To-Be Model. The best way to do that is to create a graphical road map. This is the final deliverable in Phase 1, and it's a critical component that will help ease senior management's angst about the path forward. This key transition moves the project from an IT focus to a discussion about the business and improvement efforts.

The road map should include deadlines for achieving each part of the To-Be Model, and it should show the organization's progress toward each goal. The road map should depict the phased implementation of projects so business people can review the timeline. If business executives don't agree with the timing in the road map, they can speak up and make adjustments.

Using color coding, the road map can also demonstrate how the business changes throughout the process; for example, along a three-year span, a project's priority may change from green to red based on agreed-upon criteria.

The road map is a great asset that should be used to continually articulate the value of your EA program to senior management.

These four deliverables will become catalysts for meaningful discussions with your business counterparts using a common language. They'll provide the business with insights for determining which IT projects to fund, based on the color-coded priorities. And you'll have a road map showing how you're going to get from where you are to where you want to be. ■

Pfaff *is director of the global IT Project Management Office at Jacobs Engineering Group Inc. in Bingham Farms, Mich. Contact her at jennifer.pfaff@jacobs.com.*

BYOPC Won't Be a Party for Security

If all employees **used their own PCs** at work, security issues **could proliferate.**

HERE'S a new security consideration: choice computing.

As we prepare to renegotiate our contract for PCs, our new CIO sees a chance to cut costs. He called me in to ask my opinion of "bring your own PC," or choice computing. We spend a lot of money buying new computers for our users every few years, and yet most of them would probably like to use the PCs they chose for themselves. Why not let them bring their own computers to the office? he wondered. We would save hundreds of dollars per month per employee in support costs, he figured, and employees would be more productive using PCs and operating systems they like.

Did I have any thoughts from a security perspective? he wanted to know. Oh, yes, just a few dozen.

I began to explain the complexities beyond security, including support, privacy and legal issues.

First, it was mind-boggling to ponder the sheer variety of computers that would live on our network — potentially everything from netbooks to quad-processor, dual power supply, liquid-cooled tower PCs. We are primarily a Windows XP environment, but with BYOPC, our network could end up hosting machines running Windows 7, several versions of Mac OS and all the various flavors of Linux and Unix.

And could we really *not* support those machines? If we did, our support costs would likely go up, not down. Our help desk staffers would have to expand their operating system fluency tremendously, or else we would have to open the doors to an influx of outside service technicians.

Next, I noted that our efforts to protect corporate intellectual property sometimes result in computer forensic investigations. Would we have the right to check an employee's private PC? A similar issue would arise when an employee left the company, taking his PC home with him. Would we be allowed to check that PC to make sure it had no IP on it?

Did I have any thoughts from a security perspective? Just a few dozen.

And then there's the job of keeping security patches and antivirus software up to date, which is already difficult in our Windows XP world.

JUST IN CASE

I'm still not sure what will happen with this idea, but I have started putting together my requirements.

First and foremost is the use of a centrally managed virtual desktop. I will not allow any PC to be connected to our network without some control. But even with a virtual desktop, I would have to be sure that the operating system and applications were secure. Patches would need to be current, and antivirus software would need to be installed and maintained. If the IT department were unwilling to take on that task, I would recommend the rollout of preauthorization network access control, which would force devices to pass muster before they could join the network.

Trouble Ticket

AT ISSUE: The CIO thinks having employees use their own PCs will save the company money.

ACTION PLAN: This idea has a lot of security implications. Best be prepared.

For any device that didn't comply with our patching, antivirus and other security polices, we could have a quarantine network, where users' machines would be brought into compliance before being allowed to connect to the corporate network.

We would also have to ask Legal about having all employees sign a document permitting us to investigate and take forensic action on PCs belonging to departing employees and users suspected of engaging in illicit activity, such as IP theft.

And we would want to keep all current monitoring and filtering technologies in place. If employees were using their own PCs, the temptation to conduct personal business while they were at work might be greater than ever, but we would still be liable for any activity that occurred on the corporate network.

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JOIN IN

To join in the discussions about security, go to **computerworld.com/blogs/security**

I'll be talking more with the CIO and industry colleagues, and I suspect that I will add to my list of considerations. If you have any suggestions, please let me know. ■

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

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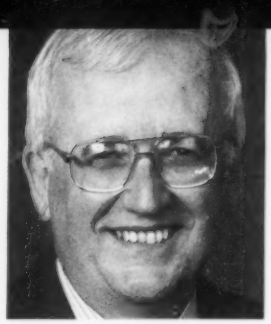
Paul M. Ingevaldson

Preserving Our Tech Competence



CHANGE IS COMING to IT. That's hardly a news bulletin. The question that interests me is whether the U.S. will have the trained people it will need for dealing with the coming changes.

I've been in IT for more than 40 years. In some ways, that's a brief period of time, considering that since my days as a unit record operator, I've seen amazing advancements like IBM's System/360, PCs, client/server, the Internet, wireless communication, smartphones and social networking. And we aren't done with innovation by any means.

Some of the latest developments include cloud computing and cheap storage. Those that are on the way include true Internet ubiquity, nanotechnology, biosensors and even transhumanism (a movement that calls for the use of science and technology to improve human mental and physical capacities). These technologies will challenge us to adjust our personal and working regimens in ways that we cannot comprehend.

Other changes have been organizational. I have reservations about outsourcing and offshoring, but they are a reality of the global economy. There's no going back. What we have to recognize, though, is what a colossal mistake it would be to let the outsourcing trend go unchecked until nearly every technology job in the world is located outside of the U.S.

This is going to be tricky, because the offshoring trend feeds on itself. As the number of IT jobs available here decreases, it becomes harder to attract young people to the profession. Enrollment in computer science courses in the U.S. has been down for years, and I've even heard IT professionals, including CIOs, question whether IT is a profession they would recommend to their children.

■ I'm not a pessimist. When I try to envision what's in store for IT, I see good things.

But I'm not a pessimist. In fact, when I try to envision what's in store for IT, I see good things.

Yes, the "foreignization" of parts of the development process is probably irreversible, but it implies that the technologist of the future will be a technology adapter who determines how to harness the tools available for the benefit of the corporation, a technology trainer who helps his business colleagues use emerging technologies, a thinker like Ray Kurzweil and not a skeptic like Nick Carr, an innovator who uses available technologies to enhance the competitive edge of the corporation.

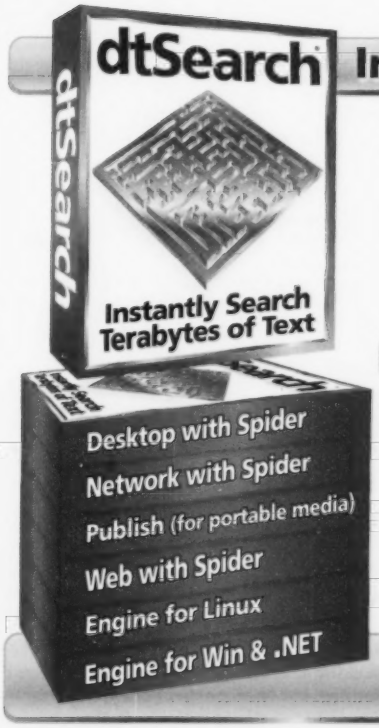
Ultimately, the successful corporation of the future will be a digital masterpiece where all parts work together, and we will need technologists to make it all work.

Such corporations are going to need smart, tech-savvy people who can see the future and who have the skills to implement it. The raw materials of such a cadre of professionals reside in a generation that has grown up with computers, using them with intuitive ease to play games and get information instantly. We must challenge this most connected generation in history to build on their comfort with technology in ways that move our culture and economy forward.

The federal government has a role here. It must encourage innovation and promote the idea that, because technology will continue to play an ever more central role in our lives, we cannot afford to fail to train and educate the people who will help make this happen.

If we instead rely on other countries to provide our technology competence, we will be outsourcing our future and risking one of our greatest competitive advantages in this fast-moving global economy. We cannot let that happen. ■

Paul M. Ingevaldson *retired as CIO of Ace Hardware in 2004 after 40 years in the IT business. You can contact him at ingepi@aol.com or visit his Web site, PaulIngevaldson.com.*



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Career Watch

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THERE'S WORK IN WASHINGTON

One employer that hasn't stopped hiring throughout the economic downturn of the past couple of years is the federal government. Karol Taylor and Janet Ruck, who this year released a fourth edition of the *Guide to America's Federal Jobs*, note that one thing keeping the hiring managers at federal agencies busy is the rate at which baby boomers are retiring. They say the government expects it will have to fill 193,000 critical-need federal jobs in the near future because of anticipated retirements throughout its aging workforce. They also list the following 10 agencies as having the highest percentages of employees projected to retire by 2012, based on data from the Office of Personnel Management.

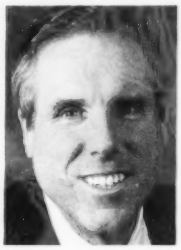
Federal Aviation Administration	26%
Department of Housing and Urban Development	26%
Social Security Administration	23%
Education Department	22%
Energy Department	22%
National Science Foundation	22%
General Services Administration	22%
Interior Department	21%
Labor Department	21%
Treasury Department	21%

46% vs. 9%

Percentages of college-bound boys and girls, respectively, who rated computer science as a "very good" career choice.

SOURCE: NATIONAL ONLINE SURVEY OF 1,406 COLLEGE-BOUND TEENS BY THE ASSOCIATION FOR COMPUTING MACHINERY AND THE W9BH EDUCATIONAL FOUNDATION, LATE 2008

■ **ASK A PREMIER 100 IT LEADER**



William C. Brown

The CIO at Iron Mountain answers questions about working for a large enterprise and moving into a leadership position.

After I graduated in 2007, I signed up with a big company that has a huge IT department. Everyone said it was a smart move, because it's a great company with great benefits. All true. But I feel stifled, doing the same things day after day. I feel like a smaller company would give me a chance to do a lot more and would be more interesting, though the hours could be longer and the benefits package slimmer. Would it be crazy to try a change like that in the current economy? As someone who has worked in both large and small companies, I can tell you that there are benefits and challenges in both environments. Before you jump, though, make sure you've exhausted every opportunity at your current company.

If you feel like you have mastered your current responsibilities, are you finding opportunities to contribute or make improvements in related areas? Speak with your manager. Tell him or her that you'd like to contribute more, and ask where help may be needed. Is there an innovation or optimization project, for example, that you can get passionate about? Although the economy is challenging, companies' current hyperfocus on ROI means there are some exciting opportunities for IT to help improve businesses' performance.

I am the head of software development at a large company, and in the past I have worked in almost every aspect of application development. I'm now in charge of a very large group and have enjoyed the management aspects of the job. I'm starting to think I'd like to move higher in management, perhaps even becoming a CIO. How best could I broaden my experience base to prepare for such a move? The key to growing into a senior leadership role is to gain a broader understanding of how IT impacts business strategy and operations. Your role in application management may allow you to consider a role in IT infrastructure or IT portfolio management, two functions where you could begin to develop this larger business knowledge. In addition, many companies are investing in capabilities to improve their business processes as a way to further leverage IT resources. These roles are often located in the business units and offer a great way to learn the operations of the company and the effect IT has on them.

QUESTION?
If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com**, and watch for this column each month.

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TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Big Savings, on Paper

At a big paper plant, the order comes down for belts to be tightened – and one of the people who is squeezed out is this pilot fish. Fast-forward six months: "I get a call from my former company," fish says. "They're having a problem with a new large printer for an automated label system." Turns out the printer hasn't been working for three weeks and the IT staff has tried everything, including paying for an IBM tech to come to the plant to work on it. "I give them a price for me to come in that would cover a few days of work," says fish. "I get into the plant and work on the printer for about three hours and it's printing fine. I then spend an hour testing and saying hi to all my old friends. While the system was down for three weeks and a whole IT staff was trying to fix it, the plant had to have a extra guy on overtime for every shift. Cost to the plant: $40,000 – plus IT's time, plus IBM's charges and my charges. If they had kept me on staff, they would saved money."

Well, Yes, but . . .

User: "I can't seem to change my password." Help desk pilot fish: Your new password needs to contain letters, numbers and punctuation. Do not use any words that you'd find in a dictionary. User: "OK. (Pause.) No, it still won't let me change it." Fish: What's the password you're trying to use? User: "April." Fish: April is a word. User: "No, it's not, it's a month!"

Problem Identified

This IT tech pilot fish works in a factory that makes loudspeakers, and one day an engineer comes in frantically looking for help. "He was exclaiming that I had to help him, as his laptop had stopped working while he was in the warehouse testing an application," says fish. "I followed him to the warehouse and he took me to where he had set his laptop up on a pallet – a pallet of boxes full of heavy-duty magnets that were labeled with warnings about intense magnetic fields."

Deploy . . . What?

Consultant pilot fish works in IT operations for a *very* big client. "One day, one of the project management types stops by my cubicle," says fish. "He says upper management wants some new configurations deployed to all workstations. No problem, I tell him – we just need to get the engineering group to write a program to make the changes. (Remember, this is a *very* big client.) Not good enough, says project manager. This is a directive from management. We can bypass the engineering step. Soooo . . . you want Operations to deploy the program that engineering does not need to create?"

■ *Sharky can't deploy your true tale of IT life until you send it to sharky@computerworld.com. I'll file off the identifying marks, and you'll snag a snazzy Shark shirt if I use it.*

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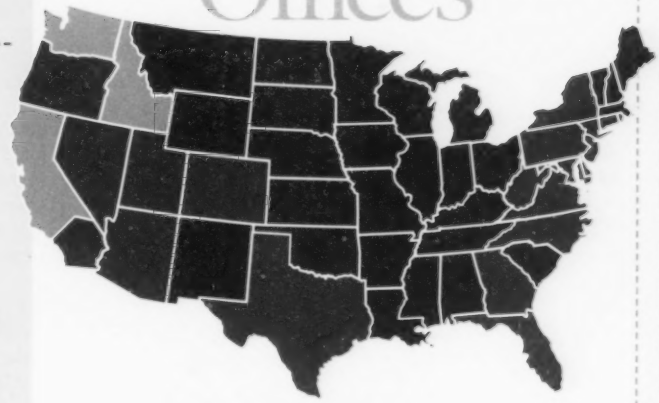

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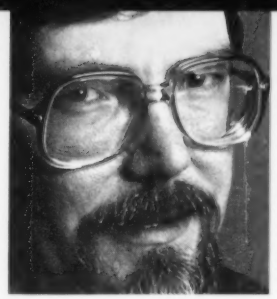
■ OPINION

Frank Hayes



Love Your Users

IN NOVEMBER 2009, a pharmacist working for the Department of Veterans Affairs was checking a patient's prescription information, using a portal to the Defense Department's health records system. But something was clearly wrong: The records said the female patient had been prescribed vardenafil — a drug for treating impotence.

Vardenafil is the generic name for Levitra, and women aren't supposed to use it.

According to the online newsletter "NextGov," which first reported the story, the VA pharmacist then checked with the medical facility where the drug was supposedly prescribed. The pharmacist's suspicion was confirmed: The information was wrong. The health-records query had returned another patient's information.

Now *that's* a prescription for catastrophe.

Scary, no? It gets scarier. According to the VA, the pharmacist quickly reported the problem and even sent along a hard-copy printout. But the bug turned out to be very difficult for VA techs to reproduce. And a workaround — repeating the query when suspect results appeared — proved to be unreliable. So on March 1, the VA cut off all remote electronic access to that DOD medical records system.

As of mid-March, that access was still cut off. The first problem has been fixed (it was due to multiple instances of a unique identifier, which only showed up at peak-traffic times). But another, thornier glitch has turned up — and this one yields incomplete patient data, which is almost as dangerous as incorrect data. Until it's fixed, the portal stays offline.

Fortunately, the health records database itself was not damaged. Medical records are still available to VA doctors by phone, fax and e-mail and on paper.

■ We need to listen to our users. And *keep* listening, even when we think we've heard all they have to say.

No patients were reported harmed by the glitch, which affected an estimated 1% of medical-records queries through the portal.

Most important, there was no catastrophe — thanks largely to one quick-thinking user.

It's cases like this one that remind us how much we should love our users. And listen to them. And *keep* listening, even when we think we've heard all they have to say.

Yes, users also burn up a lot of our time with password resets, downloaded malware and simple dumbness. We could cheerfully strangle them for things like that.

But some users, at least, have eyes, ears and brains that can be IT's first line of defense against problems that we wouldn't spot ourselves until it was too late.

Users see things we don't — performance problems, unreproducible glitches, oddball behavior. They know how our systems should work from years of using them. They also know their jobs; they have domain knowledge that lets them spot things that just *can't* be right, even if the system seems to be operating to spec.

After all, it wasn't someone from IT who discovered that the VA-Pentagon portal was delivering the wrong data. It wasn't a database administrator poring over system logs, or an operations guy alerted by a monitoring system.

It was a user. He likely didn't know why something had gone wrong with the system. But he knew his job, and he knew that the data the system was giving him didn't look right.

He checked it out. He confirmed that there was a problem. He raised the alarm.

And for the VA's IT staff, that paid off big.

Look, even in these budget-strapped days, IT has to maintain some huge, incredibly complex systems. Company survival — even human lives — can depend on keeping them working right. We need all the help we can get.

So use those users. Listen to them. Even encourage them.

Because a user might be the only thing standing between IT and catastrophe. ■

Frank Hayes *has been covering the intersection of business and IT for three decades. Contact him at cw@frankhayes.com.*

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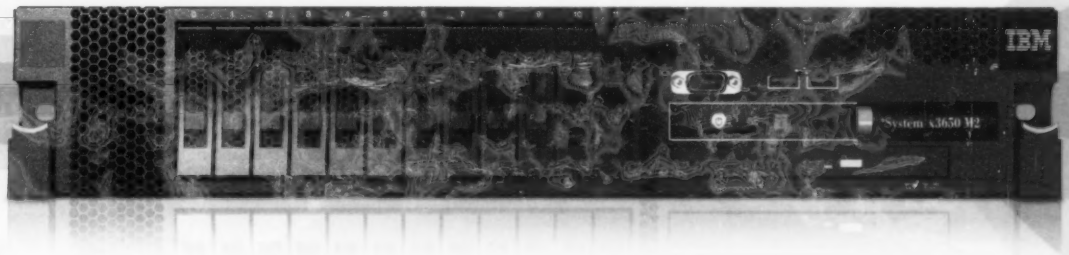

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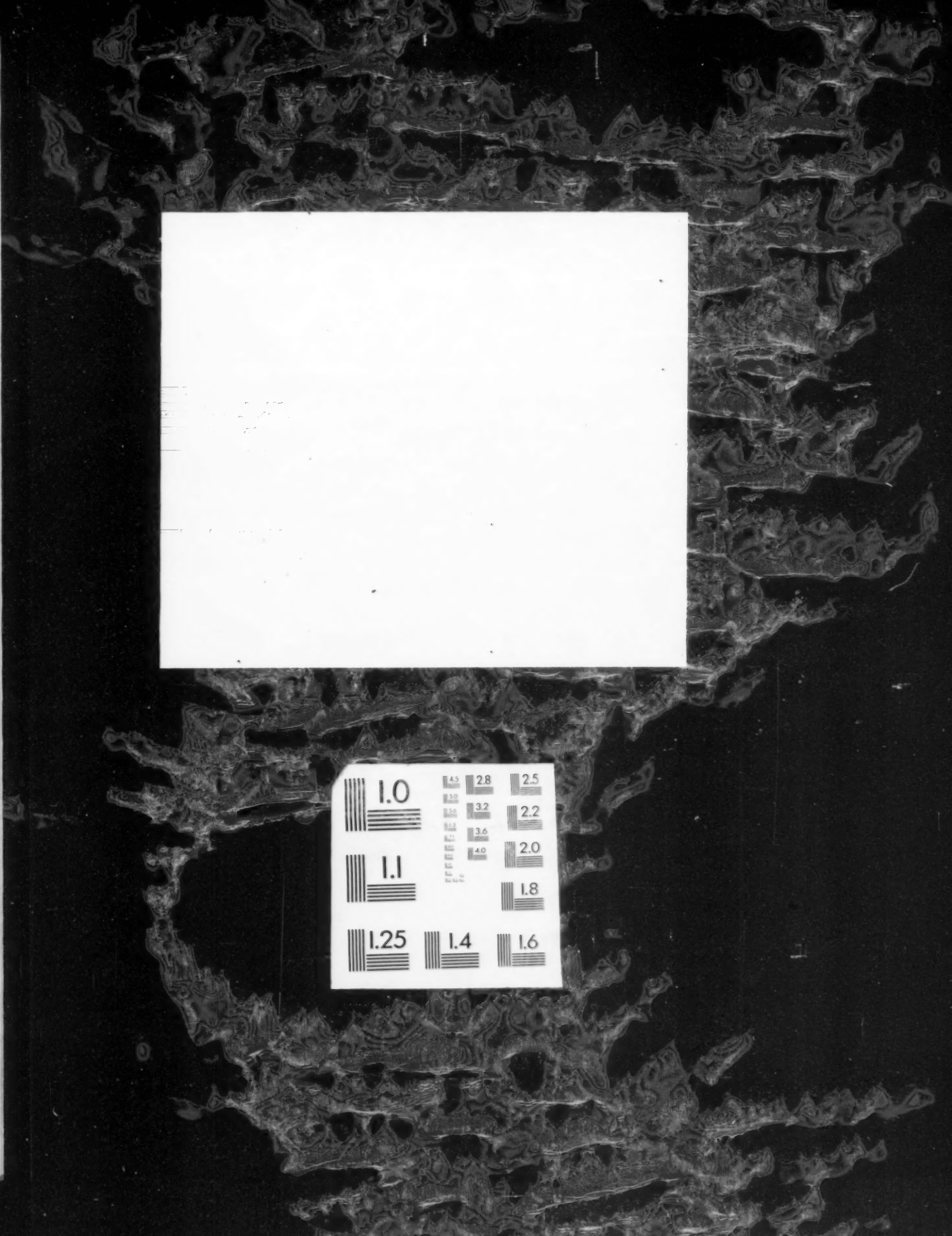
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